SCIENTIFIC AGRICULTURE

Vol. XX SEPTEMBER, 1939 No. 1

AGRICULTURAL POLICY IN CANADA[1]

C. B. DAVIDSON[2]

Western Committee on Markets and Agricultural Re-adjustment, Winnipeg, Man.

INTRODUCTION

The Canadian Agricultural Economics Society is to be congratulated on making a place on its program for a discussion of agricultural policy. There is no subject of greater importance to agriculture at this time, nor of greater importance to the nation as a whole. In a country constituted as Canada is, there can be no national prosperity and well-being on the basis of a distressed agricultural industry, or an agricultural industry which does not receive a reasonable share of the national income.

We are exploring the field of agricultural policy at a most opportune time. Public opinion in Canada is more receptive to the difficulties of agriculture than at any time in our history, for the reason that as a nation we have experienced the far-reaching effects of an agricultural depression. Consequently, we see about us a willingness on the part of other economic groups to co-operate in the reconstruction of the agricultural industry. If agriculture would but state its difficulties and its objectives in a clear-cut manner, the industry will receive sympathetic co-operation in many different directions and from many different sources.

Perhaps a historical reference should be made. At one time in our history we had a distinct and aggressive agricultural policy; a policy directed towards the rapid settlement of available farm lands, and a program of expansion assisted by energetic immigration policies. That agricultural policy was pursued with vigour, resourcefulness, and purpose by the nation as a whole. It was clear-cut and definite.

However, with rural settlement and agricultural expansion well underway, national policy in Canada turned gradually in other directions—to see what other phases of national development could be built upon the agricultural foundation which had been laid with so much spirit and energy. Thus in Canada we have seen national objectives change, and as these changes occurred, agricultural policy became less clearly defined and ceased to be the major factor in national policy. It is this fact which causes students of farm problems again to stress the importance of a restatement of agricultural policy and a restatement of objectives of the industry.

It should be stressed that we are dealing with this subject on the assumption that there will be no world war in the near future; in the faith that the more civilized countries in the world fundamentally seek human well-being and not human destruction; in the faith that the four or five

[1] Address delivered before the Eleventh Annual Meeting of the Canadian Agricultural Economics Society at Vancouver, B.C., June 19–22, 1939, held in conjunction with the Nineteenth Annual Meeting of the Canadian Society of Technical Agriculturists.

[2] Secretary.

leading countries of the world will decide to face the causes of war rather than war itself. If the present international tension resolves itself into war, there will be new situations to meet—problems not contemplated in this discussion.

SAFEGUARDING AGRICULTURE

The world has provided and still provides examples of the depths to which agriculture as an industry and as an individual pursuit may descend. A few years ago I was travelling through one of the finest agricultural countries of Europe. Driving shortly after nightfall there was no sign of human habitation and I was advised that the day of those peasant farmers ended with sundown. They were too poor to buy oil for their lamps. I immediately thought of the centuries of agricultural endeavour in the history of those rich agricultural lands and the unrelenting toil and the craftsmanship which those people had applied to their land, and to what end—abject poverty. Those were farmers with whom Canada competes in the sale of wheat and other products; this affords a striking illustration of what may happen to an agricultural people unless their economic opportunity is carefully guarded in terms of national policy. It is not enough blindly to say that these things cannot happen here. The nation must be ever watchful of its greatest source of wealth, and the basic occupation of its people.

AGRICULTURAL POLICY AND GOVERNMENTS

Agricultural policy is a rather vague term and may mean different things to different people. In discussing this subject to-day, it is perhaps advisable to define what is meant by agricultural policy in this instance. In general terms, agricultural policy involves the acceptance of certain basic principles or courses of action applicable to the agricultural industry within the national economy; it is the concept of the conduct of affairs by governments, and other economic groups, in such a way as to give agriculture a reasonable opportunity for success and a reasonable share of the national income.

There are those who will probably say that agricultural policy is entirely the responsibility of government. With this viewpoint I do not agree. The essence of agricultural policy in Canada arises from a broad understanding of the agricultural industry in relation to the Canadian economy, on the part of the people of the Dominion. It is on the basis of this broad understanding, on the basis of this generally accepted attitude, that governments may become the medium for acting upon some or all phases of agricultural policy, that programs may be evolved. In carrying out a program under a given agricultural policy, governments have their responsibility, but so has the agricultural industry, and so has every other economic group within the nation. Thus, we are concerned to-day with the attitude of mind which must be developed in Canada towards the agricultural industry and its relation to the Canadian economy as a whole.

It should be stressed that agricultural policy has little meaning until it is integrated with national policy. The way of progress for this country is to have agriculture and all other branches of economic activity going forward in proper relationship with each other on the basis of nationally accepted principles.

INTERNAL DIFFICULTIES

We must face frankly the inherent difficulty in Canada of integrating our views and our objectives in respect to agriculture on a national scale. Geography, regional difficulties, our political organization and conflicting jurisdictions, stand in the way of the development of national objectives. It is conceivable that we may find within the nine provinces of Canada farm policies being pursued which may have an immediate advantage to the province which applies them, but which, in the long run, may aggravate the problems of the industry as a whole. These internal difficulties, man-made or otherwise, only show the necessity of our developing in Canada a broad set of principles and a general understanding of our economy which will lead to orderly national progress.

Probably the first thought that comes to you to-day is whether it is possible to discuss agricultural policy in terms of the long run in the face of what are often referred to as emergency conditions. If we have the patience to examine carefully our present situation in Canada we find very few problems which have not their roots deeply in the past. These past nine difficult years have in the main revealed, rather than created, problems and weaknesses in our national economy. Therefore, we are fully justified in examining agricultural policy in terms of long run considerations and we should not be thrown off balance by the present evidences of maladjustment.

NATURE OF THE INDUSTRY

Before we examine the question of agricultural policy it is necessary to have clearly in mind the nature of the agricultural industry of the Dominion of Canada. Here again we have differences of opinion and interpretation. There are those who stress the export nature of Canadian agriculture; there are those who see agriculture largely in relation to the domestic economy. Which viewpoint is valid? Upon our choice in this matter must rest our fundamental approach to agricultural policy. The issue was clearly defined by the Hon. John Bracken at the Eastern Canada Conference on the Marketing of Farm Products, held in Montreal last March, when he stated:

> "There are 85,000,000 acres of land already improved in Canada. There are 57,000,000 acres devoted to field crops alone. And there are but 11,000,000 people within our boundaries. It is therefore most important that every Canadian, whether he be directly or indirectly interested in agriculture, should thoroughly understand the major implications of this position. It is obvious that 11,000,000 people cannot consume all the products of these 85,000,000 acres; and it is equally obvious that 700,000 farmers on these 85,000,000 acres of improved land can never hope to find a satisfactory market within a country of 11,000,000 people. It must be self-evident, therefore, to every thinking man, that Canadian agriculture, as an industry, is inevitably dependent upon markets outside the Dominion."

If anything, Mr. Bracken understated the situation. We are not only dependent upon external markets, but our very existence depends upon large scale participation in international trade as exemplified at present by wheat, other grains, bacon, cattle, cheese, apples, and tobacco, and by new surpluses as they occur.

Perhaps one of the factors which has led to a wrong conception of Canadian agriculture has been the strict interpretation of statistics which have been compiled from time to time in Canada. If we are to relate the value of agricultural production to the value of agricultural exports, we find that exports constitute some 15% of our total production. The inference is that 85% of the present agricultural production of Canada is consumed in Canada, and a decreasing percentage of agricultural production is going into external trade. Even a 15% surplus is sufficient to put Canadian agriculture indefinitely upon an export basis, but that analysis is entirely misleading because it bears no relationship to the manner in which our land is utilized at the present time, and does not indicate the fact that very large acreages of land are devoted to extensive production, particularly in the Prairie Provinces. As far as utilization of land in Canada is concerned, it may be conservatively estimated that one-third of our present improved acreage is devoted to the production of crops directly or ultimately for export. In the Prairie Provinces alone we have over 30 million acres of land normally devoted to the production of crops for export. The extent of this export acreage may be measured by reference to the fact that the improved acreage of the five eastern provinces in Canada amounts to only 17 million acres (these statistics are exclusive of pastures in both cases).

Therefore, there is valid reason for adopting in total the concept of an export industry as the corner-stone of an agricultural policy in Canada.

The view has developed in some circles in Canada that there is a sort of water-tight compartment between eastern and western agriculture—that eastern and western agriculture are two different things. It has only taken the experiences of the depression to shatter any views of this kind. So long as the West was able to produce and market its surpluses abroad, western production did not greatly affect the markets of farmers in other parts of Canada. The shoe began to pinch, however, when, owing to unremunerative grain prices, Western Canada commenced to diversify its production, which, in fact, meant increasing its production of those commodities which for so many years have been the stand-by of eastern farmers.

Only one illustration is necessary. During the past eight years the Prairie Provinces have doubled their production of creamery butter, with the result that an industry which had, by and large, remained on a domestic basis has now been pushed over into a surplus position with all the repercussions of that position. Without further elaboration of this point, it is suggested that the illustration cited serves to show the inability of Canada to maintain her present land resources and production, and by any possible manoeuvering to avoid a predominantly export position. If we do not have large surpluses of wheat and cheese or other products, we will have surpluses in other lines of production. This is inevitable in a country with the area of Canada with the present degree of agricultural development, and with a population of only 11 million people. The close relationship between farming in all parts of Canada is a fact which enables us to approach the problems of the industry in a truly national way.

Undoubtedly there may be branches of Canadian agriculture which find their entire market in Canada, or even in some portion of Canada. But even these localized branches of the industry cannot escape the

consequences of adversities experienced by the industry generally, because they are affected by reduced urban incomes and unemployment which follow inevitably in the train of unsatisfactory export markets for the major products of Canadian agriculture.

The apple growers of British Columbia may feel that they have a very substantial domestic market in the Prairie Provinces, but this market in turn is dependent upon export trade. Thus the apple producers of the Okanagan Valley are not only dependent upon an export market for a portion of their crop, but are also dependent upon an export market being available for the wheat producers of the Prairie Provinces. Their interest in export markets is much broader than the statistics of their industry would indicate.

PROBLEMS OF AN EXPORT INDUSTRY

Now what are the problems of an export industry, and more particularly what are the problems of an export agricultural industry? We must examine this problem to find out the direction which agricultural policy in Canada must take. Time does not permit a discussion of all the problems of an export industry, especially under the conditions which exist to-day, but some remarks are in order in connection with three main problems, namely: *(a)* markets, *(b)* production costs, and *(c)* land utilization.

In a consideration of the question of markets for farm products, some observations may be made in respect to external markets, and some principles stated which may become part of agricultural policy. By and large, Canada experienced no major marketing problems until the last eight years. It is true that there were times in the history of Canadian agriculture when suddenly-imposed tariffs on the part of the United States caused local distress and forced certain readjustments. But it was left for the 1929–30 crisis and for the years that followed to demonstrate the real nature and the real difficulties in connection with markets for farm products. Prior to 1930 the broad currents of international trade were able to absorb Canada's surpluses without a great deal of difficulty. We rode on the crest of a wave which we thought would carry us for all time. With the breakdown of international trade, and particularly with the breakdown of multi-lateral trade, Canada had to face a major marketing problem for the first time in her history.

Until 1930 Canada was largely saved from marketing problems by external developments. The World War occurred when we were probably on the threshold of marketing difficulties, and during the 20's we were saved from anxiety owing to the reconstruction of Europe, made possible by the lending policy of the United States.

With the inauguration of the Hawley-Smoot Tariff in 1930, and with the virtual cessation of capital movements to Europe during the depression, Canada was largely placed on her own resources as far as markets are concerned. As far as one can see, Canada's marketing problems are now up to Canada. What we achieve we will achieve with our own resources. We carry responsibilities that we have not had to carry at any time in the

past. If this be so, then we must carefully scrutinize our trade policies, our relations with importing countries, and all those factors which tend to extend or curtail the trade of this country.

In dealing with Canada's trade relations abroad there are three markets which must be given primary consideration. These are Canada's markets in the United Kingdom, in the United States and in Continental Europe. It is true that we have other markets, but these are the ones which are going to settle our destiny. We need the United States market for cattle. We need the British market for our bacon, perhaps for some cattle, and for our surplus butter, cheese, tobacco, apples, and for one-quarter to one-third of our exports of wheat. We need the Continental European market for about two-thirds of our annual wheat surplus, and considering the place which wheat occupies in the agricultural industry of Canada, this presents one of our great Canadian problems at the present time.

Incidentally, Canadian agriculture requires a very broad approach in respect to trade matters. We need markets both within and without the Empire. We need markets in the United States, and we also need markets in Continental Europe. From the agricultural standpoint it must be clear that the problems of Canadian trade must be approached on the broadest possible basis in order that we may have the trading opportunities we require throughout the world.

CONTINENTAL EUROPEAN MARKET

Our problems in the Continental European market come from a number of causes, including those factors which created the 1929–30 crisis and its depression aftermath. But in Canada we have special problems in connection with this market, arising from the fact of Canada's persistent favourable trade balances with Continental European countries.

Prior to 1930 we sold heavily to the countries of Continental Europe and bought lightly. Even as late as 1930 Canadian exports to Continental European countries exceeded imports by almost 100 million dollars (after making the necessary revisions in Canadian trade statistics). The moment Continental European countries adopted policies of rigid state control of trade, or sought balanced trade, Canada was at a disadvantage in this composite market. These countries, in the main, were forced early in the depression to reduce imports in order to preserve their national solvency. It was only natural that they should choose to reduce imports from those countries who were not trading with them on a reciprocal basis. Therefore, the lack of Canadian trade with Continental European countries, and particularly the lack of Canadian buying in these countries, has created a special problem for Canada, and a very special problem for the wheat industry. The point may be illustrated by simply referring to the record of the past six years, when Canadian imports from all Continental European countries averaged slightly less than 40 million dollars, and yet to these same countries Canada must sell over 150 million bushels of wheat annually, as well as other surplus products in order to have what might be called an adequate market in these countries.

There is probably one lesson that we can learn from the trading methods now being pursued by Continental European countries: the day of non-reciprocal trade is past as far as these countries are concerned. Even if

the wheels of international commerce commence to turn more freely, it is unlikely that European countries will again depart very far from a reciprocal trade basis. If Canada is not prepared to trade, and does not permit adequate opportunity for these countries in the Canadian market, then there will be more difficulties ahead than we have yet contemplated in respect to the marketing of Canadian farm products.

Two illustrations may be given. In 1936 Canada arranged a trade agreement with Germany which included a Payments Agreement. In discussing the reason for the new agreement, the Hon. W. D. Euler, Minister of Trade and Commerce, stated in the House of Commons:[1]

> "Our purpose in concluding these agreements with Germany was a desire to arrest the serious decline in our exports to that country, and to expand our sales in what was formerly a valuable market. May I point out that the decline has been exceedingly great and, because of certain restrictions the German government was imposing on German importers of Canadian goods, our sales were *receding almost to the vanishing point.* In 1929, in the period of so-called prosperity, Canada sold $72,000,000 worth of goods to Germany."
>
> "Happily, I believe we will all agree, there has been a great increase in the last year or two in the exports of Canada. The trend is still upwards, and our exports are now well over a billion dollars. That increase, however, was not reflected in our sales to Germany. Rather there was a decrease, and a very heavy one. While in 1929 we exported to Germany $72,000,000 worth of goods, in 1935 exports to that country had shrunk to less than $5,000,000. In 1929 our imports from Germany were valued at $22,000,000. Indicating that in that year we had a favourable trade balance of $50,000,000 which I believe is regarded by those who think that trade balances are of great importance as something that is very desirable. In all instances, I have used round figures. Yet, as I have indicated, our exports declined to a point less than $5,000,000. On the other hand our imports did not decline in the same ratio. Whereas our imports in 1929 were valued at about $22,000,000, by 1935 they had declined only to about $10,000,000. So that in 1935 instead of our having a favourable trade balance of $50,000,000 with Germany, we had actually reached the point where our trade balance in that year was two to one in favour of Germany."

Since the Payments Agreement with Germany went into effect there has been a noticeable expansion in German purchases in this country. According to Canadian trade returns (which are inaccurate in respect to Germany), Germany purchased 18 million dollars worth of goods from Canada in 1938, and Canada purchased about 10 million dollars worth of goods from Germany in the same year. According to German trade returns (which are more accurate than the Canadian statistics), German imports from Canada amounted to 72,800,000 Reichmarks, while German exports to Canada amounted to only 25,000,000 Reichsmarks. According to the Commercial Intelligence Journal (No. 1833, March 18, 1939), the Canadian Trade Commissioner in Germany reported as follows:

> "German-Canadian trade is governed by the German-Canadian Payments Agreement of October 22, 1936, which theoretically makes the flow of exports to Germany dependent on imports into Canada from Germany, with the value of the one balancing the value of the other. In practice, during the past year in particular, sales to Canada have been insufficient to pay for purchases in Canada and funds from other sources have had to be employed to cover the import surplus. Owing to the acute shortage of foreign exchange in Germany, plus the policy of the Government, which is to make exports to individual countries offset purchases in the same area, the existing high level of German imports from Canada is unlikely to continue indefinitely unless there is some noticeable betterment in the flow of trade in the opposite direction."

[1] Hansard, April 8, 1937, p. 2741.

And again, here is a quotation from the Commercial Intelligence Journal (No. 1803, August 20, 1938), in referring to the sale of Canadian wheat to Switzerland:

> "Price, while still one of the factors influencing Swiss purchases of wheat, is not the governing condition, due to monopoly control of the wheat trade exercised by the federal authorities. Quotas are fixed arbitrarily, taking into consideration the balance of payments between Switzerland and the possible supplying countries and the grain trade must abide by these governmental allocations. Canada's share of the total wheat consumed in the Confederation has declined from a long-run average of 50 per cent to around 12 in 1935, rising in 1936 to 34 per cent and falling again to approximately 16 per cent by weight during the period under review."

Once more, reference should be made to Canada's relationships with Germany. Until 1936 Canada was not prepared to enter into the type of agreement which Germany was making with other countries. We would have nothing to do with barter agreements or clearing agreements. As a result of this situation, Germany traded away to other countries the vast market which Canada once enjoyed in that country, and left us completely out in the cold, as pointed out in the House of Commons by the Minister of Trade and Commerce:[1]

> "Perhaps I should go into that a little further. One of the reasons why our exports to Germany fell so disastrously was that Germany and other countries, including Great Britain and South Africa, were making similar payments agreements, with the result, I suppose, that those other countries insisted that Germany should buy certain commodities from them; and in order to trade with those countries she just subtracted her imports from Canada."

After the agreement with Germany in 1936 Canada recognized the principle that as an exporter nation she would have to adjust her commercial relationships to the basis which the German government, for its own reasons, considered advisable. Once we recognized the principle which Germany was endeavouring to apply in respect to her foreign trade (and we are not concerned with the soundness of that principle), there was some improvement in Canada's trade with Germany.

These illustrations have been cited to emphasize the nature of some of the problems which Canada faces in connection with her European market. Without introducing any further factual material let us consider Canada's trade situation and endeavour to extract a few principles which might be incorporated within the ambit of agricultural policy.

1. In connection with the problem of trade, and especially with Continental European countries, there is a large volume of literature now extant in Canada dealing with the measures which certain European countries have taken to restrict imports, increase domestic production, and otherwise meet their problems. This comprehensive literature has its value as indicating the immediate things which are going on in markets in which Canada is seeking to sell farm products. At the same time these descriptive efforts are altogether out of proportion to the literature now available in Canada dealing with the fundamental causes which lie behind the actions which have been taken by these countries. The important point for us to realize in Canada is not what the tariffs are against our wheat or other farm products, or what quotas are established. The

[1] Hansard, April 8, 1937, p. 2744.

important thing is to know what lies behind the actions of these European countries. In other words, let us balance our efforts and give as much consideration to causes as we give to effects. This is a challenge to the agricultural economists of this country. There is a great work to be done in getting at the fundamental causes of present trade restrictions, in trying to ascertain the basic causes of these actions which we have discussed and publicized so thoroughly.

Canadian economists should note the work of Major H. G. L. Strange, and particularly his published address to the Regina Board of Trade,[1] in which he set forth some of the basic factors which lie behind our present situation in respect to markets. These are the things which must be understood by the people of Canada, and the people of other great exporting countries. Because only as we understand, not only our own problems, but the problems of other countries with which we are doing business, will we come to the point where on the grounds of common humanity, if nothing else, we can bring an end to the problems of abundance which are weighing so heavily upon us, and the problems of scarcity which are blighting the lives of people who in the past have brought so much prosperity to this country through their purchases of our export surpluses.

We may not like Germany's form of government or some of the policies of that government. At the same time we have a direct interest in the German nation and the German people. Without our share of a buoyant German market in times of peace there can be little prosperity for Canadian agriculture.

It is interesting to read in the recent bulletin of the Canadian Chamber of Commerce as follows:

> "The liberalizing of international commerce is a golden key to restoring international prosperity and general appeasement."

Surely it is time that all of us, no matter what our profession, no matter what interest we represent, join together in a new objective which will stem the tide of narrow nationalism, and prevent ourselves and others from being wrecked on the rocks of economic stupidity.

Therefore, in building agricultural policy in Canada let us incorporate an enlightened attitude towards international trade in general and towards our markets in particular. Such an enlightened viewpoint would include a broad understanding of the economic conditions confronting people in other countries—an understanding of their objectives, an understanding of their culture, and an understanding of what they mean to us in the well-being of the Canadian people.

2. When we add to the export nature of Canadian agriculture, the export position of other primary industries with their heavy stake in international trade, any policies designed to exclude foreign goods from the Canadian market are basically unsound. Perhaps we have never adopted a policy of exclusion in this country, but we have adopted policies which have restricted imports into this country. Without arguing the merits or demerits of such policies on the part of the nation as a whole, let us stress the necessity, as a part of agricultural policy in this country, of

[1] The international situation as it affects the Canadian wheat industry. Research Department, Searle Grain Co., Ltd., Winnipeg, Man. February 21, 1939.

attaching a new degree of importance, respect and dignity, to the import trade of Canada. Goods from other countries circulating in the Canadian market are an evidence of sound trade policies—an evidence that Canada recognizes her position as a great trading nation, an evidence that we recognize the basis of our national economy. This attitude of mind towards the products of other countries must become part of the agricultural policy of the Dominion.

3. Perhaps partially stated in the preceding paragraph, but of paramount importance in connection with agricultural policy, is the concept that we must respect reciprocity in trade. We must try to the best of our ability to meet the wishes of all those countries in Europe who to-day are seeking a more or less balanced trade, with the realization that the well-being of our great export industries and living standards in Canada and abroad can be best promoted by the exchange of goods.

Take the case of Germany with whom we have a trade agreement. Probably that treaty in detail is not all that we might like, but at the same time the extent of the German market which we may hope to enjoy in normal times depends largely upon ourselves. Germany is willing to make available for the purchase of Canadian goods every dollar which Canada spends in Germany. We have, therefore, the opportunity in our own hands, and in our own control, of determining the market which we can enjoy in that country. Here is an opportunity well worth while exploring to the full, realizing at the same time that here is the key nation in Continental Europe, and the nation which will probably determine by its power and influence the commercial policies of its border states.

4. In connection with trade matters in relation to agricultural policy, I believe it is important that we should stress the fact that we must adjust ourselves to the trading practices and the commercial systems of those countries in which we hope to sell our goods. We lost heavily by refusing to meet Germany on the terms which she laid down.

Agricultural surpluses are persistent because production goes on and on, and if we have any idea that we can stand by and wait for other countries to bring their commercial policies into line with what we consider to be the proper methods of doing business, we must be prepared to pay a very considerable price for that waiting. Probably one of the factors in the past has been that we have not understood the problems and the difficulties of those countries with which we have been doing business, and perhaps that may account for our reluctance to adjust ourselves to the trading methods adopted by importing countries. But surely as the seller of vast quantities of surplus farm products, we should adopt a slogan that the "customer is always right" and make what adjustments are necessary in order to see that our products move as freely as possible into consuming markets.

In laying the basis for an agricultural policy for Canada, it is necessary to place first emphasis upon the question of markets, which means that we shall have to give a great deal more consideration to our problems abroad. The logical starting point for a program of this kind would be the establishment of a foreign agricultural service. Probably the reason that such a specialized service was not established years ago was the fact

that our marketing problems were relatively small. We have now been duly impressed with the extent and the nature of these problems which we face abroad, and Canada cannot go on very much longer without a foreign service comparable to that of the United States Department of Agriculture. Surely the wheat problem has brought home to Canada the importance of enlarging work of this kind.

In 1929–30 we in Canada were almost overnight confronted with a situation which had been simmering in Europe for some years. Our farmers had little warning of what was transpiring in European markets which in every respect constitute the life-line of prairie agriculture.

With a systematic flow of information coming from other countries to Canada under a specialized agricultural service, a vital field of research would be opened up, and we would have a better opportunity of bringing research work in Canada to the point where it can deal with many vital factors which are now more or less neglected.

There is a very definite human element lying behind international trade, and most of you probably agree that neither in respect to governmental activities, nor in respect to private industry, has Canada had sufficient direct and personal contacts which bring goodwill, mutual understanding and trade. In this connection reference is made to an article by Mr. Robert England, written in June, 1936. Mr. England stated.[1]

> "We are so far removed from the consumer complex of these countries that we can be very unresponsive at times to their ways of thinking and their cultures. In some way or other bridges have to be built . . . we are dependent upon international trade in a very peculiar way. . . . Officially and unofficially we need friends abroad."

COST STRUCTURE

An exceedingly important factor in the situation is the cost structure under which the agricultural industry operates in all parts of Canada. Owing to geographical features of Canadian settlement, as a country we have to face transportation costs of an unusual nature. Regardless of whether these costs are high or low, geography in Canada involves distances and it costs money to move goods. Thus we have what might be called a natural cost factor which affects agriculture in all parts of Canada, and particularly agriculture in those areas which are farthest from domestic or external markets and whose only outlet is by railroad.

But we have gone further than this in Canada. As a people we accepted the responsibility of developing, side by side with our export agricultural economy, a comprehensive scheme of industrial development in Canada. The mechanism used to bring about industrial development was the utilization of certain natural advantages such as water powers plus the principle that the people of Canada should be taxed in order that we might go some distance in emerging from an agricultural to an industrial country.

Let there be no doubt as to the effect of a tariff. The workings of the protective system in Canada may be illustrated by reference to the automobile. Canada has considered it expedient to have an automobile industry and to that end imposes certain tariffs against the product coming from the

[1] Excerpt from "The Payroll", June, 1936, p. 14.

United States. As a result there are automobile factories in Canada producing cars for the Canadian people at a cost $200 to $250 in excess of the price at which American-made cars could be made available to the consumers of Canada. In so far as the autmobile or truck is part of the cost structure of an export industry, a levy has been made upon that industry, without at the same time there being any increment in export prices for the products we sell or any further assurance of the stability of export prices. Apply the "automobile case" over a very wide range of commodities and it is possible to visualize the cost structure of this country augmented from many different angles without the slightest compensation in export prices. Providence has been very kind to Canada in endowing us with great resources, but the same Providence has not yet arranged with the consumers of Europe to pay us a little more for our products whenever we decided to impose a tariff, and so arises a problem for our export industries.

Thus agriculture with its primary interest in export markets and low production costs has been forced in the development of Canada to accept an artificial cost structure based upon the maintenance and the development of a policy of protection. From this situation has emerged the oft-repeated statement that agriculture sells in a highly competitive international market and is forced to buy in a protected domestic market.

There are two broad effects which have resulted from the existence in Canada of an export agricultural industry and a highly protected industrial development. These effects are: *(a)* increased costs for agriculture; *(b)* the weakening of Canada's trade relations abroad incident to the difficulties associated with the development of reciprocal trade with those countries to whom we look for markets.

Probably there will always be speculation among students of agricultural problems as to how far our protective system has militated against the interests of agriculture and on the other hand, as to how far the main disabilities so incurred have been offset by some advantages in the form of building up urban markets as a result of industrial development.

In presenting its case to the Dominion-Provincial Commission, the Manitoba Government estimated that tariff costs impinging upon the farmers of the three Prairie Provinces amounted to some 47 million dollars per year. This is probably a conservative estimate. The costs of the protective system to Canadian agriculture can be only partially estimated in terms of increased costs, and probably the most damaging effect of the protective system has been the loss in price which has resulted from lack of markets and a reduction in volume of trade with those countries to whom we look for markets.

It should be pointed out that in Canada we have gone somewhat further than tariff protection. Under the Customs Act very definite price protection is given to industries operating in Canada, as exemplified by Section 36 of the Customs Act, reading as follows:

> "The value for duty of new or unused goods shall in no case be less than the actual cost of production of similar goods at date of shipment direct to Canada, plus a reasonable advance for selling cost and profit, such advance not to be greater than that which in the ordinary course of business under normal conditions of trade, is added, in the case of goods similar to the particular goods under consideration, by manufacturers or producers of goods of the same class or kind in the country of export when sold for home consumption."

Also, in Section 43, Subsection 1, of the Customs Act, we have the most extraordinary powers granted to the Governor-in-Council. This section reads as follows:

> "If at any time it appears to the satisfaction of the Governor-in-Council on a report from the Minister that goods of any kind not entitled to entry under the British Preferential Tariff or any lower tariff are being imported into Canada either on sale or on consignment, under such conditions prejudicially or injuriously to affect the interests of Canadian producers or manufacturers, the Governor-in-Council may authorize the Minister to fix the value for duty on any class or kind of such goods and notwithstanding any other provision of this Act, the value so fixed shall be deemed to be the fair market value of such goods."

These two passages are quoted from the Customs Act simply to show to what extent the tariff is augmented by legislation which in its very nature is designed to support price levels for industrial products in Canada, and can only have the effect of introducing rigidities in the cost structure of agriculture. Probably these measures in themselves are sufficient to justify agriculture in asking for and receiving a great deal of consideration in the way of price fixing or minimum guarantees.

It is not intended to argue the merits or demerits of the protective system as it has been applied to Canada. That is not necessary. But it is suggested that if we still regard agriculture as being the basic industry of Canada there are several questions which the Canadian nation will have to answer in due course. These questions are:

1. In the building up of our industrial structure, have we involved agriculture in production costs not compatible with our participation in highly competitive international markets?
2. In the development of our industrial structure, have we jeopardized our trade with any or all of those countries to whom we must look for markets for our farm products?

Canadian agriculture (particularly as a predominantly export industry) is suffering today from internal developments in the Canadian economy, and these developments have had both effects enumerated in the preceding statement. If we have been wrong in respect to internal policies pursued in Canada, then we should have evidence of maladjustment as a result of a cause and effect relationship. Undoubtedly you will agree that we have in somewhat generous proportions the maladjustments which we might inevitably expect. It is only necessary to cite depressed prices for farm products, lack of parity between the prices of farm products and prices of other commodities, persistent unemployment in urban communities resulting in part from reduced agricultural income, abnormal state assistance to agriculture, and the assumption by governments of the costs of maintaining those who cannot find employment. In this connection Canadians would do well to heed the words of Dr. W. A. Mackintosh at the Winnipeg Marketing Conference in December 1938.[1]

> "I see no possibility that we shall in this country reach the desired goal of full employment for labour and all our resources until the time when by readjustment of costs or by opening of markets or by readjustments of the production in Western Canada, or by any combination of these things, a profitable relationship is once more established between western agriculture and the world market, on which not only it, but the rest of Canada, depends."

[1] Proceedings of the Conference on Markets for Western Farm Products, December 12–15, 1938, p. 14.

My long association with the wheat problem probably warrants me directing one observation in that direction. We face, in connection with wheat, one main problem, namely, lack of markets with the consequent effect of unremunerative export price levels in relation to internal prices. Without in any way trying to establish any cost of production figure in respect to wheat, it is the experience of those most closely associated with the wheat industry that there is a point below which the price of wheat cannot go without impoverishing those within the industry, and detrimentally affecting the national economy. That point is somewhat higher than most Canadians fully appreciate. The problem has been recognized by the Dominion government, and since 1935 a minimum price for wheat has been established. The wheat farmers have been given a guarantee irrespective of what developments occur in the international wheat position, or whether or not we have adequate markets for our total production.

During the past year this guarantee has cost the national treasury a considerable sum of money, and no doubt guarantees of this nature will continue to cost the taxpayers of Canada considerable sums, but under the circumstances this sort of assistance is inevitable and in the public interest.

This illustration is cited merely to show some of the things which will inevitably happen in this country if through domestic policies the cost structure of agriculture is increased to too great an extent, or we fail to secure adequate export markets for the agricultural industry. It is perhaps a good thing to demonstrate clearly to Canadians in all walks of life by illustrations of this kind, that one subsidy leads to another—that there is a very definite limit to the costs which can be laid upon an export industry such as agriculture without producing inevitable effects upon that industry and upon the economy as a whole; and that at a certain point the taxing power of the state is inevitably involved.

Now what shall our agricultural policy say about this cost structure? It can be stated in the form of a principle—Canada as a nation must recognize the implication of the export nature of her economy.

Are we not as reasonable Canadians capable of arriving at a reasonable attitude in respect to tariff and other matters affecting the primary industries of this country? It can be laid down as being generally true that in Canada we have not based our tariff structure upon anything approaching a scientific principle. Tariffs have been put into effect without proper consideration of *(a)* the effects of such tariffs upon the cost structure of primary industries, and *(b)* the effect of such tariffs upon Canada's markets abroad. Let us stress in connection with agricultural policy the absolute necessity for a re-examination of the tariff policy of this country, and the subjecting of existing and future tariffs to critical examination of their effect upon this country's cost structure and commercial relationships with other countries. The time has come when research agencies will have to take a hand in this extremely important phase of the agricultural situation in Canada.

A NATIONAL ISSUE

A fundamental issue is being clearly drawn in Canada at the present time in so far as we have passed the stage when the agricultural industry can, of its own resources, carry disabilities which have been imposed and

meet its situation in regard to markets. During the past five or six years the nation as a whole has been drawn into the agricultural situation in a financial way. While this development no doubt has its immediate incentive in the shocks sustained during the depression, it is also evident that national policies pursued in Canada over a long period of years have been tending to create the very situation with which we are now faced. The alternative at the moment seems to be whether the nation will deem it advisable to continue to make large commitments in respect to agriculture in the form of guaranteed minimum prices, and to undertake the cost of carrying immediately unsaleable surpluses, or whether the nation as a whole will undertake to reduce costs of production or secure external markets. This alternative in respect to national policy will probably become a matter of grave public discussion in Canada, and it is hoped that the right decision will be made, because much is involved, not only for agriculture, but for the Canadian economy as a whole.

OTHER VIEWPOINTS

There are two viewpoints which might be considered at this time in connection with matters with which we have already dealt.

The first viewpoint is the one which suggests that the solution for the disabilities which agriculture suffers within the national economy lies in the general direction of compensation, which, in fact, means that further taxation should be imposed in Canada to change the incidence of taxation which has already been levied. Probably we cannot find a permanent solution of our difficulties through a policy of this kind as it is purely an internal adjustment and does not offer any hope for the improvement of external markets.

The second viewpoint is this—that there has been a permanent contraction in world markets and that Canada cannot look forward to external markets as large as she had some years ago, and that therefore she should adjust her agriculture to the new situation. None of us want to see liquidation in the Canadian agricultural industry, or hurried readjustments which may or may not improve our basic position, until we have exhausted every effort *(a)* to improve our situation in respect to markets, and *(b)* to give agriculture every opportunity of successfully competing abroad. The fact that very few economists and responsible authorities in Canada have advanced the view that farmers should reduce their production must in itself be an indication that there is still faith that markets can be secured and that Canadian agriculture can continue on its present scale.

In this connection let us consider this viewpoint. Why should we abandon a large section of our agricultural industry or make unconsidered shifts in production on account of an international situation which does not bear the earmarks of permanency. If economic nationalism in its broadest sense had brought well-being to either importing or exporting countries, we might consider it as having possibilities of permanency. It has brought, however, nothing but misery to both importing and exporting countries—sufficient misery to warrant a crisis being reached before long, a crisis either in the form of a destructive war, or a crisis which will force economic adjustments on a wide scale between the leading countries of the world.

Do we not lose sight of the fact that even in spite of economic nationalism at home and abroad, the world has probably never witnessed a greater anxiety for trade than during the past few years? Short of foreign exchange, Europe, and particularly Continental European countries, is adopting every conceivable measure to secure trade. The drive is intensive and far-reaching and suggests that there is a realistic basis upon which the importing countries of Europe could be met half-way in connection with matters affecting trade.

LAND UTILIZATION

We now come to a brief discussion of land utilization. Some of you may wonder why this very important subject has been left until this stage of the discussion. The broad aspects of land utilization policies in Canada and the broader phases of production policies are dependent upon the answer which is ultimately given to the problems of markets and the ability of the agricultural industry in Canada to compete successfully in those markets. It is clear that if Canada does not secure adequate external markets for farm products, far-reaching changes are going to take place in the utilization of land in Canada.

The problem of land utilization in Canada has been under thorough study for quite a number of years. It has been approached from the standpoint of soils and soil types. It has been approached from the standpoint of those engaged in studying problems of production. It has been approached from the standpoint of the agricultural economist who has examined the problem in terms of productivity, and the economic uses of the basic elements of soil and climate in combination. Some of the fruits of this basic work are now in evidence, but the real problem is to translate this scientific work into the realm of practical agricultural policy. At this point many other factors are introduced, and under present conditions some of these are very uncertain. Looking at the general position of Canadian agriculture and looking at the international situation as it exists today, it is extremely doubtful whether we are in a position to press too far any views which we may hold upon land utilization in this country.

CONSERVATION

Perhaps it is sounder for us, under present conditions, and until the future basis of Canadian agriculture is more definitely established, to give major emphasis to the question of conservation. The situation may be illustrated by reference to the Prairie Provinces. As a result of farming practices and as a result of 30 or 40 years of continuous production of soil-depleting crops, and in part, as a result of improper settlement policies, there are evidences of soil deterioration—evidences that new types of cropping will have to be utilized and that probably the technique of persistent wheat production will have to be altered in a measure at least. In so far as production policies now being carried on are resulting in an element of soil deterioration, it would seem that some active policy should be adopted to alter the situation. Those who have been responsible for soil surveys in the Prairie Provinces, in combination with those engaged in field crops work, are fully capable of collaborating in a conservation

policy for western agriculture. There does seem to be a measure of contradiction in regard to our present difficulty in respect to markets, the extent of national assistance being rendered to the industry, and the continuance of methods and types of production which run contrary to the long-run interest of our land resources.

The policy of soil conservation will have to be worked out in conjunction with a wider program for the conservation of our natural resources owing to the inter-relationship which exists between the various vegetative zones in Canada.

Conservation policies can be pursued irrespective of whether we have a wheat problem or distressed conditions in connection with any other branch of Canadian agriculture; because through conservation, we are securing the permanency of production itself. There is much to be done in this field, much which is independent of all other factors in the agricultural situation.

In this connection a brief quotation is submitted from the remarks of Dr. L. E. Kirk at the Winnipeg Conference on Markets for Western Farm Products held in Winnipeg last December. In dealing with the maintenance of soil fertility, Dr. Kirk stated:[1]

> "This is a factor in cost of production which has not yet been figured out for the West, but one which represents a cumulative charge against agriculture that sooner or later must be met. Agricultural history seems to suggest that in sparsely populated countries the neglect of soil fertility either results in soil depleting or becomes a charge on the state. And if agriculture must secure assistance from the state, the most justifiable form of subsidy is surely that which finds its ultimate use and effect in maintaining the fertility of the soil as a national asset for future generations. It seems to me that there is a principle involved here, and it is that principle which I admire in the United States Soil Conservation Programme."

RESEARCH

This country is greatly indebted to the basic scientific work which now stands behind Canadian agriculture. In particular the nation is in debt to the agricultural economists who, in a relatively short period of time in Canada, have laid the foundations in economic fact and interpretation for a sounder agriculture, and who have given helpful assistance to those who are now seeking and will continue to seek a livelihood in the industry. One has only to examine the basic work which has been done by scientists in the field of soils, of production, and of agricultural economics in the new agricultural area of Canada, namely, the Prairie Provinces, to realize what has been accomplished in a relatively short period of time. And the work is still going on in splendid fashion today.

Scientific work and research must play an ever-growing part in the future of agriculture. Without in any way detracting from the excellent work which is being done by government research agencies, we face a problem in Canada which we must frankly recognize. Owing to the fact that we have certain basic problems in connection with agriculture which

[1] Proceedings of the Conference on Markets for Western Farm Products, Dec. 12–15, 1938, p. 208.

may have political significance, we should recognize that there is a range of matters with which we cannot expect governmental agencies to deal. At the same time these problems must not go by default. Such problems as those associated with various aspects of fiscal and trade policy—problems which bear so directly upon the future of agriculture—cannot remain unexplored. Our agricultural policy should include provision for the establishment of a research agency independent of governments. In this connection the suggestion formulated with so much diligence by Mr. H. L. Griffin, of the United Grain Growers Limited, calling for the formation of a Wheat Institute, has distinct merits in meeting a research need as far as this country is concerned. Probably Mr. Griffin's idea, in the light of our experiences during the past few years, might be broadened out in the form of an Agricultural Institute. Such a body could work in full co-operation with other research agencies in Canada, in full co-operation with governments, and at the same time interest itself in the sort of problems which are not being dealt with by governmental agencies. Such a body might perform a very useful service in dealing with some of the problems which have been outlined during the present discussion.

Wider uses should be made of the universities throughout Canada for research work. Our universities are well equipped with scientific men liberally endowed with academic freedom, but not with funds. Somewhere in the research structure in Canada a greater measure of financial assistance should be forthcoming to universities in order that they too can play their part in the necessary research work which lies behind an active agricultural policy.

CULTURAL PROGRESS

One final observation. An agricultural policy for Canada must not lose sight of the necessity for cultural progress. Perhaps we cannot hope to recover the economic exuberance of the days of settlement and expansion. We can, however, build an agricultural community in Canada which will include many intangible things which we have missed in the past. Perhaps as a people we may have to change our sense of values in life and give more importance to less material things. Thus, within the range of an agricultural policy we must at all times seek a better life for those on the land and we should never lose sight of the goal of cultural advancement—the things that can add enjoyment and stimulation to the individual, and intangible riches to the community.

IN CONCLUSION

We must admit that agricultural policy is an extremely complex subject. It involves bringing together a wider range of factors each in their proper relationship; it involves weighing factors for their importance; it involves the dovetailing of the minds and experience of those who are working in the agricultural field in many different directions; it involves generalization in a field where specialization is the rule rather than the exception. In this analysis of the situation, emphasis has been laid on the points which received least consideration in the past. Some of the basic

problems of agriculture must be re-emphasized, and agricultural policy must include many other factors which have not been mentioned in this discussion. No better summary of the need for reconsideration of the whole field has been made than that by O. S. Longman.[1]

> "What is the limit of the financial burden which can be borne by agriculture? What adjustments are to be made in the economic structure of agriculture if increasing state and social services are to be provided? The increasing burden of taxation bears heavily upon agriculture, and as yet departments of agriculture have not materially interested themselves in this phase of our agricultural problems. We have been engaged in dealing with cases and individuals, rather than with broad national policies. The former should not be overlooked, but the latter must be our future concern."

[1] *C. S. T. A. Review*, March, 1939.

AN APPRAISAL OF THE MOVEMENT TO INCREASE INDUSTRIAL USES OF FARM PRODUCTS[1]

H. E. Erdman

University of California, Berkeley, Cal., U.S.A.

Since May, 1935, with the establishment of the Farm Chemurgic Council, a veritable barrage of publicity has informed the American people of startling new developments in synthetic production of everyday articles from farm crops, and extravagant hopes have been raised as to the possibilities of wiping out once and for all the spectre of depression by way of new industrial developments.

The basic philosophy of the movement for increased industrial utilization of agricultural products is one of national self-containment and "is founded on the philosophy that so long as poverty thrives in rural America, the nation as a whole cannot enjoy enduring prosperity."[2]

BACKGROUND AND OBJECTIVES OF THE MOVEMENT

The term "farm chemurgic" was coined by Dr. Wm. J. Hale, in 1933 in his book *The Farm Chemurgic*, which was distributed widely by the Chemical Foundation.[3] The interest created by this book led to the suggestion that the best way to get something started was to call together a group of prominent agriculturists, scientists, and industrialists for open discussion.[4]

The first conference was held at Dearborn, Michigan, because of the widely advertised interest of Henry Ford in the possibilities of using farm products in the manufacture of certain automobile parts. Out of this conference grew the Farm Chemurgic Council.[5]

The Council has ". . . . as its sole objective the enlargement of national farm income through the creation and expansion of markets for American farm products as industrial raw materials."[6] This end is to be accomplished through research which is to be encouraged by creating popular support in its behalf, by co-operating with other agencies, and, in some instances, by financing desirable research projects which neither public nor private laboratories are in a position to undertake.[7]

"In practical action," to quote further, "the field of Chemurgy may be said to embrace:

"New uses for surplus farm products.

"New crops to supply existing or new needs.

"Profitable uses for farm by-products and wastes."[8]

---

[1] Giannini Foundation Paper. Presented to a joint meeting of the Canadian Agricultural Economics Society and the Canadian Society of Technical Agriculturists at Vancouver, B.C., June 19–22, 1939.

[2] Fritchie, Carl B., at Florida Chemurgic Conference, Proceedings, p. 3, February, 1937.

[3] The Chemical Foundation was established in 1919 by executive order of President Wilson under the "Trade with the Enemy Act". It was established as a non-profit agency to make available to American industry German chemical patents. It licensed the use of these patents at low royalty rates and so obtained funds to carry on its activities. Buffum, Wm. W., Treasurer, The Chemical Foundation and Farm Chemurgic Council, Midwest Conference of Agriculture, Industry and Science, Proceedings, p. 2.

The Foundation financed a considerable amount of research, but also financed publicity including the wide distribution of a number of books including *America Self Contained*, by Samuel Crowther, *America Strikes Back*, by Gustavus Meyer, and *The Farm Chemurgic*, by Wm. J. Hale.

[4] Ibid., p. 5.

[5] See Proceedings, Second Dearborn Conference of Agriculture, Industry and Science, Michigan, p. 38 5 1936. The personnel of the Farm Chemurgic Council is published in succeeding pages.

[6] "National Farm Chemurgic Council," an undated pamphlet issued early in 1939 by National Farm Chemurgic Council, Inc., 50 West Broad Tower, Columbus, Ohio.

[7] Ibid., p. 8.

[8] Ibid., p. 8.

For these most recently announced "practical action" statements the writer has nothing but approval. They are couched in modest terms and are actually preceded by a statement that the Council proposes "to discourage unsound promotions." All this is fine.

A reading of the published proceedings of the numerous farm chemurgic conferences held from 1936 to 1938, inclusive, shows that the followers of the movement are ideologically isolationists, accepting agricultural fundamentalism as a first principle and applauding each suggestion to "guarantee the American market to the American farmer." Most of the arguments advanced for the movement follow these lines and are in my judgment unsound.

I shall therefore direct my attention not to the recent official announcement but to some limitations involved in the reasoning followed or proposals made by some of the enthusiasts who are, it seems to me, in shallow water with a fine new boat.

AGRICULTURAL FUNDAMENTALISM A FALLACY

The increased industrial utilization of farm crops is often urged on the grounds that we cannot have national prosperity until agriculture is prosperous, the implication being that agriculture is somehow more important than other lines of industry.[1] It seems to me that such reasoning is erroneous and that those who act on it will make mistakes in national policy.

An unemployed, poorly employed, or low paid group of workers in any walk of life is a drag on national prosperity, be it coal miners in Illinois, steel workers in Pittsburgh, lumber workers in Washington, or Mid-west farmers. The argument as to which is more important suggests the Biblical illustration used by St. Paul in which he has the several parts of the body argue among themselves over their relative importance.[2]

The benefits of any economic activity tend to diffuse themselves throughout the community whenever free trade is permitted within the community and between communities. Money is said to "burn in the pockets of most persons". They no sooner have it than they turn right and left to spend it for necessaries and luxuries. The sellers pay their workers, replenish their stocks, and a new circle of diffusion starts like that around the pebble you may have tossed into a pool.

There was a time when agriculture was the dominant industry in the United States. In our early national period perhaps seven-eighths of our gainfully employed were in agriculture. Now scarcely a fifth are so employed. This does not mean that agriculture is a decadent industry. Instead, as Dr. Davis has put it, ". . . in the modern world, and conspicuously in the more advanced nations, 'man does not live by bread alone.' "[3]

The development of manufacturing in the United States during a period of rapid progress in mechanical and chemical arts led to an enormous shifting of workers in the direction of our cities. Thus in the first place

[1] See second paragraph in this paper.
[2] Corinthians 12 : 14–25.
[3] Davis, J. S., On Agricultural Policy, p. 32. Food Research Institute, Stanford University, California, 1939.

the development of farm machinery decreased the need for farm labour but increased the need for town and city workers to make and supply machines. Second, many erstwhile farm tasks were transferred to town or city factories; for example, food canning, meat preparation, and clothing manufacture. Third, many new industries were developed to satisfy additional wants—the telephone, the radio, the home refrigerator, etc.—and to take over such home tasks as laundering, tailoring, and the cleaning business. Fourth, as mass production lowered manufacturing costs, its accompanying attempts to widen markets increased marketing costs as regional markets became national markets, again providing for additional city occupations.

Increased industrial utilization of farm products is likely to promote further shifting in occupations since the raw material cost in most such cases is a small part of the final cost. Any lasting benefits that come from increased industrial utilization of farm products will come not because farm products are used as a base but only because, and to the extent that, human desires are thus most economically satisfied.

WASTE IN AGRICULTURE

So much is said about the utilization of the waste products of agriculture that it seems desirable to consider for a moment the nature and significance of such wastes.

There are four main classes of agricultural waste products: (1) those residues which accumulate in the process of harvesting the useful products out in field or forest; (2) the lower qualities which are produced along with the saleable qualities; (3) those factory residues which accumulate in the processing of a raw material; and (4) those products which become "waste" when prices fall so low that it does not pay to harvest them—the "surplus" of recent years.

The first group includes grain straw, cornstalks, cotton stalks, etc. In the aggregate these loom large. Cornstalks in the main corn states, for example, are estimated at 104,000,000 tons each year; oat straw, 22,000,000 tons; and wheat straw, nearly 50,000,000 tons in the leading wheat states.[1]

These products are in no sense real wastes. They are plowed back into the soil under ordinary circumstances and provide much of the necessary materials and conditions for continued production of the goods we really want—the grain and the cotton fibre. Plowing them under makes it unnecessary to buy quite as much commercial fertilizer as we would otherwise need. They are often used for feed, in which case they are converted into meat animals with a residual fertilizer value. Parts not eaten by cattle are used for bedding, and in that way used to absorb valuable manure residues accumulating in the livestock industry. One of the reasons for growing wheat in some sections of the Eastern States is that cheap wheat straw for bedding is thus provided.

The value of such residues will of course vary widely with the relative price of commercial fertilizer, of grain to be produced, and of the condition

[1] Jacobs, P. Burke, and Harry P. Newton. Motor fuels from farm products. U.S. Dept. Agr. Misc. Pub. 327, p. 110, December, 1938.

of the soil on which it is to be grown. Dr. Henry G. Knight, Chief of the Bureau of Chemistry and Soils of the United States Department of Agriculture, not long ago told a midwestern conference that a number of experiment stations in the United States had placed the fertilizing value of wheat straw plowed directly into the soil at from two to three dollars per ton and for corn stalks at four to six dollars per ton.[1]

Any real "waste" at any given time and under a given set of price relationships will thus be not the total value, but rather the difference between the return when used as feed or fertilizer and the possible return from a higher use which has become feasible.

The second class of waste above mentioned is that from the lower quality products that are harvested with the better qualities: cull apples, for example, cull oranges, and cull walnuts. There are, all over the country, plants devoted to the utilization of this type of waste. Thus there are apple driers and cider factories, citrus by-products plants, and walnut cracking plants where the lower qualities are cracked and the usable meats made available as food. Even so, large quantities are dumped because too low in quality for feasible use as food.

The preparation of food products from these lower quality products entails greater costs than the preparation of equal amounts of superior product. Seldom do such uses pay the producer more than a salvage value —a little return for the extra labour of hauling the product to the plant. The best that can ordinarily be said is that such processing gives opportunity for the use of some otherwise unused labour at off seasons,[2] and some added quantity and variety in available food supplies for a people.

The third major class of wastes consists of those factory residues which accumulate in the process of converting a product. These may be called "nuisance wastes"—such, for example, as peach pits, walnut hulls, corncobs, oat hulls, etc.

The alternative to manufacturing such wastes into useful products is to pay out money to have them hauled to some dump heap, to burn them as fuel or at some cost in an incinerator installed for the purpose, or to provide a cesspool for them.

Obviously, where such wastes accumulate, it will pay to develop a new product as soon as doing so provides a cheaper way of disposition for waste than the old dumping process. Any small profit is "so much to the good." Some of these wastes accumulate in rather large volume. Here again additional opportunities for employment are opened each time a new process reaches the stage of economic feasibility.

The fourth class of waste, namely, the "surplus" of recent years, offers serious problems.

In the first place, it is seldom feasible to develop expensive processing plants for the conversion of occasional surplus crops.[3] At best, such

[1] Midwest Conference of Agriculture, Industry, and Science. Proceedings, p. 12, March, 1937.

[2] For a discussion of some of the problems of canning off-grade fruits see: Sherman, W. A. Merchandising Fruits and Vegetables. A. W. Shaw Company, New York, pp. 121–147. 1928.

[3] For some additional aspects of this point see T. W. Schultz. Economic aspects of new industrial outlets for agricultural products. Jour. Farm Econ. 20 : 138. February, 1938.

plants are risky ventures in the early stages of any new development and to have them stand idle or run at low capacity most of the time will usually make them impractical.

Industrial plants need regular supplies of low priced raw material. Since they cannot get regular supplies by depending on periodic surpluses, they cannot regularly get the low prices caused by the occasional existence of surpluses.

Where an established firm can conduct such conversion of waste products by the installation of a small amount of additional equipment, such processes may become feasible even though available crops are irregular.

A second type of problem arising in the utilization of surplus crops in lower use outlets concerns industry proration or pooling problems. Where an industry is in a state of chronic surplus for a period of years, by-products plants may be financed and proration plans worked out through industry organization. Such, for example, is the case in the California lemon industry. Processing a part of the crop on a salvage basis raises the price on the remaining crop which is supplied on a pro rata basis by all producers in the organization. In this particular case the industry uses the same plant for processing off-grades and surplus lemons, both on a salvage value basis.

A third problem concerns the public welfare aspects of any schemes which propose to force parts of a crop into lower uses in order to raise the price of the remainder. In so far as such schemes merely seek to avoid an occasional industry collapse from bumper crops and low prices, they may be the best way out. In so far as they aim at making an industry profitable over a period of years they head for ultimate disaster, because increased production tends soon to force more and more into the low use outlet while maintained prices slow up consumption.

INDUSTRIAL UTILIZATION AND SELF CONTAINMENT

The promotion of industrial utilization of farm products is urged on the grounds that it will promote national "self sufficiency." Why be self contained? Two reasons seem to stand out in the numerous discussions.

(1) We want national security and can get it in greatest degree by minimizing foreign trade and its entangling alliances, uncertainties, and dangers.

(2) We want to maintain our relatively high plane of living and can do it by putting our own people to work producing things we now buy abroad.

I can appreciate the argument of national security. War is a ghastly thing to contemplate. It is questionable, however, whether crusading against foreign goods in order to make room for new domestic products tends to produce international harmony. On the contrary, one is inclined to accept the idea that our own tariff policy as formulated in the Hawley-Smoot Tariff Act of 1930 did much to generate the tariff raising orgy of the more recent period in various countries.[1]

[1] See Jones, M. J. Tariff retaliation. University of Pennsylvania Press, Philadelphia, 1934. The author traces the international repercussions of congressional discussions concerning the Hawley-Smoot Bill.

Such self-containment programs therefore tend to promote just those national jealousies and rivalries which sooner or later make for war.

On the matter of maintaining our plane of living by refusing to trade with low wage countries, the reasoning is in error and wholly unacceptable as a basis for promoting industrial utilization of farm products.

Let us start by asking the question: Why trade at all? The answer is: To obtain the advantages of division of labour and of geographic differences in soil and climate. Ours is an economy of trade which has developed only because of its increased want-satisfying power. My shoes are infinitely more satisfactory than if I were to make them; I am sure I could do nothing about glasses, but I would be pretty helpless without them; members of my family are fond of avocados and bananas, but we cannot raise them at all in Berkeley. These are but extreme examples.

The only reason why we as individuals trade that which we can produce relatively advantageously for bits of many other goods and services which we can produce relatively less advantageously, is that we may have more of everything including leisure for enjoyment—that is what we mean by "a higher plane of living."

In the last analysis, trade, whether it be domestic or foreign, is valuable not for what we get rid of, but for what we get in return. Anything in the nature of trade barriers, therefore, lowers the plane of living.

If a down-trodden or backward people is willing to work all day producing a product which it will trade for one we can produce in an hour, let's trade with them. Our labourers are thus benefited, not injured. Levying a tariff on such foreigners' product in order to enable American manufacturers to produce a less satisfactory substitute to be sold at a higher price just does not make sense. Frankly, subsidizing a few plants on an experimental basis, including the commercialization of the product, is acceptable, providing the end product is one that may be expected to stand on its own merits in acceptability and price.

OVERSTATEMENT AND DISAPPOINTMENT

Speakers and writers frequently overstate the feasibility of producing new crops and of utilizing old or new ones.

Reference is repeatedly made to a wide range of products in such terms as to confuse the mind of the business man, the farmer, and the consumer on the matter of technological possibility as compared with economic feasibility. The mere fact that certain experiment stations are growing a given product is no evidence that it is a desirable crop for the farmer who is trying to make a living. The mere fact that it is even now technically possible to operate a motor on a fuel of finely chopped wood, straw, or coal[1] is no indication that it is likely to become economically feasible in the near future.

Overexpectation arising form overstatement of feasibility builds a background for fraudulent promotion. Already one of its spokesmen has warned against unsound promotions of "chemurgic enterprises".[2] The

[1] Brandt, Karl. Long time Shifts in Human and Natural Resources. Proceedings, Western Farm Economic Association. June 1939.

[2] Barnard, H. E. Director of Research, Farm Chemurgic Council, in Journal of Farm Economics, 20 : 120. February, 1938. See also footnote ———.

enthusiast never likes to have a dream disturbed. Once he is fired with enthusiasm he asks advice from those who agree with him. That's why it has been so easy to develop in California booms in spineless cactus, eucalyptus trees, silkworm culture, etc., to mention only a few. You all know others.

The tendency to overstate possibilities in part takes the form of implying that certain outstanding recent developments are the direct results of new research promoted for this particular purpose.

Now, as a matter of fact, an enormous amount of scientific research has been under way in various State, Federal and endowed or commercial laboratories and experimental plots during the last half century.

The search for new crops; studies of breeding for desirable qualities, whether disease resistance as with wheat or change in constitution as when the sugar content of beets is raised; studies of the utilization of waste, particularly for the manufacture of alcohol, starch, etc.; even the search for by-products uses of seasonal surpluses[1]—all these are repeatedly mentioned in the reports of the United States Department of Agriculture and of the several experiment stations.

The early work was distinctly of a groping nature. But a large body of knowledge has grown up and a highly trained group of specialists has been developed.

Recently increased support has been obtained for the expansion of research on industrial utilization. Doubtless, the discussions by the Farm Chemurgic groups have done much to promote such expansion.

My reason for stressing this matter of overstatement is that it is likely to lead to disappointment and loss of support when it becomes clear that results of research come slowly, and quite often from unexpected sources, as one after another of the pure or applied sciences makes a step forward.

Furthermore, it is not only chemists who are at work on these problems, but physicists, engineers, bacteriologists, geneticists, and even economists.

NET GAINS VERSUS GROSS GAINS

Many of the discussions of prospective industrial utilization of farm products assume that gross gains are "net". Thus the proposal to produce alcohol for a 10% blend in our gasoline supply would require some 16,000,000 acres of corn, at 1935 rates of production, out of the 93,000,000 planted. It would mean nearly the entire potato crop, if that were the selected source, or would require some 9,000,000 acres of Jerusalem artichokes, of which scarcely any are grown now.[2]

Any gain to producers of farm crops would be that much loss to present gasoline producers. A gain in employment for Iowa or Nebraska might mean just that much loss in Texas or California oil regions. Even if the

[1] See report of C. L. Alsberg, Chief, Bureau of Chemistry. United States Department of Agriculture, 1921, p. 2, for a summary of this work, 1913-1921.

[2] Jacobs, P. Burke, and Harry P. Newton. Motor fuels from farm products. United States Department of Agriculture, Misc. Pub. 327, p. 41, December, 1938. The table to which reference was made gives assumed yields per acre and acreage required to produce 1,000 gallons of alcohol and acreage required to produce alcohol equal to 10% of the gasoline consumed in 1930 and in 1935, together with acreage actually harvested for ten leading crops.

alcohol blend is better or cheaper, we need to consider carefully just what sorts of occupational or industrial dislocation we are starting, how fast they may come, and what the net gain may prove to be.

The development, let us say, of a paper board factory in a corn belt town to convert corn stalks into fibreboard boxes for local use would present a number of negative, as well as positive sides. It would deprive local farms of a fertilizer which should ultimately be replaced at some cost if fertility is to be maintained. It would deprive northwestern lumber mills of an outlet, and railway companies of freight business, thus curtailing employment in those instances.

On the positive side, it would provide corn belt farmers or their sons some extra pay for off-season labour, and would provide all year labour for plant operators and sales persons.

The population shift—not great, since no large employment is assumed —would give the new locality some additional basis for wider community services, such as hospitals, theatres, schools, department stores, etc. The new population would come from somewhere—some from the congested cities, some from surrounding farms and towns, some from a declining lumber industry which formerly made the box material. What is the net gain?

The suggestion that alcohol blending be brought about by a tax on unblended gasoline is so unsound that I shall not stop to discuss it. In fact, at least one of the Farm Chemurgic Council officials has himself renounced any such procedure.[1]

A matter of an entirely different sort is the type of proposal that involves the planting of tung oil trees on rough and otherwise relatively useless land in the southeastern part of the United States and cork trees on the hilly sections of California. Such plantings would furnish employment for some persons at tasks which will produce a useful product.

Here again, the question of feasibility is involved. At the prices likely to be obtained for tung oil or for cork, can a person devoting a substantial part of his time to this industry make a living by exchanging these products for the things he needs in the everyday process of living as a civilized human being? The answer is simpler if the cork trees and the tung oil trees can be grown on the rougher portions of farms devoted to other purposes, thus utilizing spare-time labour. The new income would thus supplement the regular income very much as the growing of garden vegetables or the keeping of a cow and a few chickens or a pig are recommended for the purpose of supplying the family table.

Even here, tung oil would displace other oils and so cause occupational displacements and shifts like those already discussed.

So much is said about the use of our "idle land" that one may be excused for suspecting that some persons occasionally lose sight of the real issue, that what we really want is human welfare. Land is valuable only as it serves to promote that end.

[1] Fritchie, Carl B., Managing Director at Southern Chemurgic Conference, Proceedings, p. 7, October, 1936.

A point that is significant if we plan to use land to produce industrial raw materials is the nutritional well-being of our population. Recently studies of diet have analysed the dietary land requirements by income levels. One study shows that an adequate diet, so constituted as to be available at low income levels because it includes large proportions of cheaper foods, would require 1.7 acres per capita. However, a diet available to medium incomes, which would include, let us say, more fruits, vegetables, milk, eggs, and meat, would require 2.22 acres per capita.[1] One may well raise the question, then, as to the validity of attempting to force into non-food uses the substantial land areas which social desirability dictates are needed in supplying foods.

A significant aspect of the whole problem is the comparison of present uses with future uses of our resources. Much is to be said in favour of conservation of our mineral and oil resources, but perhaps a good deal can also be said for the conservation of our surface soil resources. It is certainly true that corn or potato production will decrease valuable soil resources. How high a price do we want to pay for conservation of resources for future generations? How do we know what they will want?

I have already suggested that mere technical perfection of another product is not the answer either to feasibility or general acceptance. It was not enough to perfect the horseless buggy; it took Ford's low-price policy to put it over. It is not enough to point out that "there is a market for seven million new homes in the United States" in connection with the recommendation that wallboard be made out of bagasse, nor is it enough to point out that air conditioning of homes, old and new, might add enormously to summer and winter comfort in millions of homes. Low price, realization of desirability, availability of service—all are necessary.

In closing, let me say that I do not want you to consider me a pessimist. On the contrary, I believe we face technological developments far beyond those most of us seriously contemplate. I believe, however, that we need to consider long-time and indirect effects as well as the immediate and direct. The first are often minor; the latter are usually important but sneak up on us, so to speak, after we have gone on about other affairs.

We talk freely of bringing about changes to correct present maladjustments without realizing that these in turn may have grown out of the very changes we once lauded. We boasted of progress in the automotive field as production climbed. We overlooked the fact that in the slow passage of time from 1900 to 1930, the outlet for 38 million acres of horse feed had disappeared. So had the need for thousands of wagon makers, harness-makers, livery stable keepers, etc. Even the horse doctor had to turn cat and dog specialist.

We must be forward looking, but let us be realistic. Let us keep in mind also that it is human welfare in which we are interested.

---

[1] See report of the National Resources Board. December, 1934, and Part I, "Preliminary Report of Land Planning Committee to the National Resources Board"; also "Land Planning Report" of the National Resources Board, for elaborations of the above points. See also Stiebeling, Hazel K., and Esther F. Phipard. Diets of Families of Employed Wage Earners and Clerical Workers in Cities. United States Department of Agriculture. Cir. 507, 1939.

THE DEVELOPMENT AND OPERATION OF MILK CONTROL BOARDS[1]

B. A. Cooke[2]

Milk Control Board, Saskatchewan.

Regulation of production and handling of fluid milk to ensure quality, cleanliness, and freedom from disease has been in force so long that it is taken for granted. Milk control, as it is commonly interpreted, meaning control by a government-appointed body to set up and maintain price structures, is new, having been first introduced in Manitoba early in the present decade. Since its inception in Manitoba it has spread until it is now operating in all but two provinces either under a separate board or as part of the duties of a board or department already in existence.

Whatever the machinery set up to handle milk control, and regardless of the name under which it operates, the duties and powers of the responsible bodies vary but little in different provinces; and for convenience' sake shall all be referred to as "boards" or "milk control boards". The subject would appear inclusive of the actions of boards in general and I shall therefore endeavour to give a general summary of the information I have obtained both from published material and from chairmen of other boards by correspondence. In doing so it is necessary to confine myself to general statements as time will not permit otherwise. If Saskatchewan is mentioned most frequently it is because that is where my experience lies.

All boards trace their beginning to a common source, namely, an emergency in the business that was endangering the economic life of those engaged in the production or handling of milk, but more particularly of the producer. In some cases the threat to the supply both as to quantity and quality was also involving the consumer. It is a common story of interwoven economic factors—a large world carry-over of wheat, the crash of farm markets, grain farmers turning to dairying for ready cash, mushroom growth of new distributing concerns, price-cutting by distributors to obtain or to hold good customers, all of which was reflected sharply in producers' income not only through lower prices for fluid milk but also in the form of large surpluses.

This was all regarded as of such temporary nature that the original legislation was made to remain in force only a year at a time, and for a number of years the Manitoba Act was renewed annually by the Legislature. After seven years in Manitoba and a slightly lesser time in other provinces, control boards still operate today under legislation enacted not simply as an emergency measure, accepted reluctantly by those concerned, but as a government activity definitely wanted by them. They know that their business has been stabilized by it and they believe that without it the stability resulting from protection afforded by such regulation would soon be lost.

---

[1] Address delivered before the Eleventh Annual Meeting of the Canadian Agricultural Economics Society at Vancouver, B.C., June 19–22, 1939, held in conjunction with the Nineteenth Annual Meeting of the Canadian Society of Technical Agriculturists.

[2] Chairman.

THE BEGINNINGS OF MILK CONTROL

When the Municipal and Public Utility Board of Manitoba made its first inquiry, its jurisdiction to fix prices depended specifically on finding that Winnipeg's milk supply was in danger. It had no trouble in doing so; a threat that the milk supply would be cut well below needed quantities was an actuality according to W. R. Cottingham, K.C., in a public statement a few months after the introduction of control in Manitoba.

In other provinces the background is similar—producers forced to let equipment and premises deteriorate; health officers forced by conditions to relax vigilance; producers being forced to reduce production to that which they could supply without any extra effort or cost; the price-cutting among distributors being taken from producers' prices and gradually threatening to force them out of business. Drastic measures were necessary. The Manitoba Board made attempts to get the industry to govern its own prices but the attempts proved futile. As a final resort prices were fixed by board orders, combined with sufficient supplementary regulations to ensure their enforcement.

OBJECTS OF FIRST CONTROL MEASURES

The point is that steps had to be taken, and taken promptly at that time, to safeguard a milk supply and preserve the business from the results of its own actions. To make the measures bring about the desired result was the next problem. A new law with a drastic change in principle produces resistance, and much educational work as well as strict enforcement was necessary to consolidate for the industry the benefits of such control.

Other provinces experienced similar history and after the issue of the first orders the process of consolidation was necessary. This is still going on and while the background has changed somewhat, boards have not as yet been able to relinquish price control in any degree. The industry does not seem to want them to; on the contrary, the evident desire is for more strict measures, if anything.

CHANGES IN FACTUAL BACKGROUND

Naturally, the facts which caused the regulation in the first place have undergone a change. The "emergency" as a prerequisite condition to jurisdiction of boards has largely disappeared. Legislation is assuming gradually a more permanent character. We do not now have to deal with threats to the supply. That problem is under control, and boards are settling down to more natural and day-to-day problems of administration or regulation. As there are plenty of these, boards seem to continue to be occupied with them.

THE FUNCTIONS OF MILK CONTROL BOARDS

The function of milk control boards as it has so far worked out in practice seems to be to maintain a steady, perhaps light but none the less firm, rein on the operation of the milk industry, having in mind the mutual benefit of producer, distributor and consumer. In Saskatchewan this includes licensing of distributors, and the fixing of prices all along the line,

with the addition of sufficient supplementary regulation to ensure the adherence to these prices by all classes of persons engaged. The same is true of practically all provinces where such statutes are in force, but there is a difference in the method and procedure, particularly with regard to price fixing, in different provinces. In Ontario, except in cases of dispute in which the board may be called upon to arbitrate, the establishment of price schedules is accomplished by agreement between producers aud distributors in the respective markets. The board approves the schedules and they are then binding on all concerned. In some other provinces the board itself, after inquiry of sem-judicial nature, fixes the prices as already mentioned.

The licensing of persons connected with the production, handling and distribution of milk is made a part of the jurisdiction of boards, and the principle of licensing is in general use by boards. The conditions for obtaining board licences are so nearly alike in all provinces that a brief statement will cover them. Licences are conditioned for the most part upon adequate equipment, sanitary requirements and financial responsibility. In Saskatchewan, distributors are the only ones required to have a board licence. In some other provinces licensing includes producers, storekeepers and others handling milk. In some provinces licensing provisions are extended to transportation and persons operating trucks in the transport of milk on highways have to have a board licence. This gives a board some control not only over transportation itself, but also over the use that is made of transportation facilities by milk dealers.

An important function of milk control boards, where it is not provided elsewhere in government machinery, is the bonding of milk dealers for the protection of the producer shippers. It happens that this activity in Saskatchewan was already in the hands of another government department when the board was set up. In other provinces this is listed as one of the most important of milk control board activities. The security afforded shippers through the bond is ranked as even more essential or fundamental, as a stabilizing factor, than fixing of prices. It can be readily seen that where, in the past, a dealer could default payment to producers without fear of penalty, that dealer could, with considerable impunity, undercut his competitor whose business conscience and respect for his credit standing imposed greater restrictions on his conduct.

Some boards also check the weights and tests of milk since they affect value of milk supplied. In provinces where this particular function is not the specific responsibility of the milk control board, the board, being in very close touch with complaints along this line, co-operates with the responsible department in order that duplication may be avoided. In this connection considerable merit is evident in the arrangement whereby all the regulation governing the purchase and settlement for milk is under one head.

Administration is the most important of any board's functions. All boards have found an efficient administrative staff essential. Orders, regardless of their nature, have to be enforced if they are to be effective. Here administration begins and the wise administration of any law is as

important as the law itself. A poor law, well administered, may be very successful whereas, with poor administration, the best of laws may fall far short of its purpose.

ADMINISTRATIVE PROBLEMS

The day-to-day administration is the means by which control is made to work. Strange to say, the little day-to-day matters that come into administration cause greater concern than what we are pleased to term major problems. One of the circumstances complicating administration is the fact that it has to deal not only with a commodity but also with human emotions. Perhaps the most important function of any board would be to turn over as much control to the industry as possible, and be content with helping those engaged to help themselves. But human emotions are uncertain and, because of that, I fear that people are not always disposed either to help themselves or be helped. The perfect board should have five-fold qualifications:

Judicial—in ability to weigh evidence in order to come to decisions that are fair or equitable.

Administrative—in following up decisions and enforcing orders and the provisions of the legislation under which a board works, and doing it in such a manner as to elicit the maximum co-operation.

Technical—in applying knowledge of practical operation and the problems of both production and distribution.

Economic—in attempting to sum up conditions accurately and in recognizing and reconciling conflicting factors.

Psychological—in measuring the public (or private) mind and trying to ensure satisfactory public reaction to whatever measures may be deemed necessary.

Good administration is unobtrusive; or to put it in other words, like the well-tuned motor of an automobile it runs quietly. In milk control work, adjustments as between distributors and producers are of necessity required from time to time. In dealing with these adjustments the promotion of confidence is desirable, yet difficult. Distrust and suspicion are natural human traits. While all boards are endowed with great powers, the use of those powers to their limit is generally regarded as unwise, except as a last resort.

In spite of developments in milk control legislation it is still a new principle in law. That is, perhaps, one reason why boards have not accomplished all that has, in some quarters, been expected of them. One criticism, perhaps valid, has been that more positive accomplishment in reducing overlapping is not evident. Nobody is more conscious of this than the boards themselves.

Yet definite progress is noted. The continuous and progressive audit of distributors' books in the course of inspection work provides information as to what is a reasonable return for a distributor. The boards have, generally, tried to give them that—no more. The consequence is that, year by year, the number of licences in force is decreasing. There has been amalgamation and the discontinuance by producer-distributors of the

distributing branch of the business, and this has come about voluntarily with little pressure from boards themselves. All this tends toward reduction in duplication.

Control of resale prices is the most perplexing problem of administration. There are so many ways to evade prices, by premiums, secret rebates, special commissions and what not. More than once inspectors have been baffled in their search for air-tight evidence suitable for either a court or for a board inquiry. The matter of cost of such investigations is also difficult because most boards operate on a limited budget. A possible solution to the expense angle might be the power to assess the costs against those occasioning them.

After all, the object of enforcement is prevention of abuse. We have found the power of inquiry with the attendant threat of publicity for a distributor about as effective a deterrent to the so-called "chiselling" as any. In most cases an inquiry must precede board action in cancelling or suspending a licence. To a distributor, whose reputation is at stake, the publicity of an inquiry is more fearful than the prospect of temporary loss of his licence. Boards rarely have to go to such a length.

All boards require regular reports from those engaged in the business. This greatly facilitates the work of administrative staffs, and makes available to boards all necessary information regarding the operation of a business. Through the summarizing of these reports, information may be passed back to the industry, provided it is not detrimental to the regular conduct of business. Proper information can be of great assistance to executives and we find that it is appreciated.

BASIS OF PRICE FIXING

You may dress up the basis of a given price in high-sounding phrases but it must in all cases be that of public interest—or, in plain language, common sense. "Public interest" is an elusive term and should not be confused with "public opinion" as the two are not necessarily, by any means, synonymous, particularly when the latter is expressed only by a vocal few. In our own case, we like to regard it as the mutual interest of producers, consumers and those engaged in the handling and distribution of milk. In fact the Saskatchewan Legislature at our recommendation amended the act to include these classes specifically as "the public".

Any schedule of prices in Saskatchewan must consider the interests of the consumer, the producer, and the distributor and his employees, giving the proper weight to the claims or requirements of each, having in mind a reasonable return to the producer and a reasonable price for service to the consumer. I like to think of these interests as *mutual* rather than, as commonly regarded, *conflicting*. When the interests of one party are too well served at undue expense to the other, the interests cease to be mutual and begin to conflict.

Here is how the subsection of the Saskatchewan Act dealing with power to fix prices, is worded:

> ". . . . . notwithstanding anything herein contained, approve or establish, from time to time, temporary schedules of prices at which milk shall be supplied by the respective classes, having regard primarily to the interests of the public, including consumers and those engaged in the production and distribution of milk, and to the continuity and quality of supply, and in so proceeding the board shall not be bound by any rule of law or public utility practice to see that any rate of return is provided on any plant, equipment or investment."

Consumers make up the vast majority of those involved and their circumstances must modify the claims of those engaged in the trade, either as producers or dealers. Consumers naturally want milk at low prices but the continuity of supply and the quality and healthfulness of the product is also their interest. If cheapness only is achieved at the expense of the continuity and quality of supply their interest is not served. The supply must be there in sufficient quantity and suitable quality every day of the year. It is desirable, too, that it come from a steady source. Hence the interest of the buying public is definitely bound up in that of the producing public.

"COST OF PRODUCTION" AND "CONSUMER REACTION"

All boards are faced with the claims of producers for "cost of production plus a reasonable profit". Some enactments, I believe, require boards to consider this. In Saskatchewan legislation "cost of production" is not mentioned but "public interest" is very prominent. If the supply from the established producers in a milk shed continues to come to the market in quantities sufficient to supply the needs, together with a reasonable reserve, is it not reasonable to assume that these producers are satisfied that it is to their advantage to remain in the business? Whether a man obtains so-called "cost of production" then becomes a matter for his own ability in management.

Nevertheless it is in the public interest that the producer must have a reasonable return for his expenditures and efforts—enough to encourage him to stay in business; the distributor, enough to run his business and pay his help when maintaining adequate service to the consumer. Any higher price attracts more people into the business and more milk to the market, and conversely tends to cut down the use of the product. Then, if high prices merely add to the surplus, they are in the interest of neither producer nor distributor.

One factor influencing consumption of whole milk is the comparison between its cost and that of substitutes. Another may be described as the consumers' "sense of injustice". If a housewife thinks she is being cheated or overcharged she soon makes readjustment in her buying.

In Saskatchewan in 1937, due to unprecedented drouth and lack of feed, the price went to 12 cents per quart. Soon a change became evident and distributors showed marked decreases in sales in all the larger cities where this price was in effect. Complaints became numerous in the spring of 1938. It was learned at the same time that sales of evaporated milk were going up. The consumers had merely decided to buy less fresh milk

and replace it in the household with substitutes. After a drop to 11 cents there has been a gradual recovery. This could have become a vicious circle. With consumers cutting down their purchases, distributors with reduced volume were complaining of higher unit costs of operation and demanding a larger spread. The producer's surplus would soon cut down his returns.

Yet some recognition has to be given to a reasonable return for reasonable service in all phases of the milk supply. This would mean farmer, distributor, and labour. In the long view, public interest demands that the producer have some prospect of prosperity, and the distributor is entitled to a return that will enable him to perform an adequate service and to pay suitable wages.

THE FUNCTION OF THE INQUIRY

All action of the Saskatchewan Milk Control Board with respect to the production, supply, distribution or sale of milk, regardless of its nature, must be based on an inquiry, either general or specific, with regard to the matter before it. Conditions as specified in the legislation must be found to give the board jurisdiction to act. Inquiry by a public sitting is a regular procedure, with evidence supplemented by careful investigation either by the board and its regular staff or by specially appointed investigators. There are objections to public sittings in that private business is liable to be held up in a deceptive light before the public, and in the process of newspaper reporting there is fear of statements being distorted.

The tendency, sometimes apparent, for witnesses to give their evidence for the benefit of the press cannot exactly be called an advantage and, unless procedure is kept quite formal and witnesses closely and carefully held to facts, there may be a tendency to exaggerate and colour their statements. Even with this disadvantage, the public hearing gives people an opportunity to express their views openly and, so long as the evidence is pertinent, the information is valuable to a board as well as to the public.

THE DISTRIBUTOR'S MARGIN

The distributor's margin or spread in the milk trade is constantly open to discussion. There seems to be a general lack of appreciation of the service he performs. The milk has to be received from the producer, sometimes 100 miles or more away; it has to be weighed, tested, processed, bottled and delivered. Distributors have to pay taxes, insurance, workmen's compensation, and they have to pay decent wages.

There is probably not a province in Canada or any other place where milk control is in operation where these costs have not been examined more or less closely, either by specially appointed investigators or by some other method. The result is similar in all cases. There are, under present operation methods, certain definite costs to the distributor which cannot be avoided. These amount to about 5 cents per quart of which, on the average, delivery from the plant to the householder takes about 3 cents.

The Milk Control Board of Manitoba, in its Annual Report for 1938, summarizes reasonable distribution costs per quart for Winnipeg as follows:

Delivery	3.00 cents
Plant or processing	1.80 cents
Plant loss	.10 cents
Standardizing and Board Assessment	.23 cents
TOTAL	5.13 cents

Saskatchewan surveys made at the instance of the board in 1936, without going into detail, gave similar results. Without a complete change in the setup of milk distribution much deviation from this figure seems unlikely, if not impossible. At that, some distributors show higher costs than this. In calculations of a reasonable spread it is customary to discard those records where abnormal costs are shown. Then, by including the cost of reasonable services only, the distributor's allowance may be fixed. Owing to this practice on the part of boards considerable economies in distribution have been effected. Costly and wasteful competitive habits have been eliminated. Distributors have come to realize that highly competitive tactics only served to increase their costs without any permanent results. The new tendency is toward co-operative effort to increase *total* sales.

In plant operation and in organization of delivery service there has also been some improvement and, with the spread controlled as it is, producer-distributors have shown a tendency to leave the distributive field. This has helped to bu ld up wagon loads and accomplish a saving in delivery —the most expensive single department.

Vital changes are necessary to enable the consumer to benefit as much as some outspoken critics commonly suggest. While individual distributors insist on having their routes cover an entire city there will continue to be several distributor's wagons serving a city block. But we, as human beings, are creatures of habit. We believe competition is the life of trade. We detest the idea of monopoly and, if routes were amalgamated, zoned or rationalized unduly, the loudest complaint would come from consumers. While this condition remains, distance and time to cover routes, as well as wagon capacity, will be limiting factors on the loads carried. A solution of this problem, if it can be made acceptable, would appear beneficial to consumer, producer and distributor alike. Co-operative delivery and zoning seem to be the principal solutions so far offered to this delivery problem. Reports from New Zealand where "zoning" has been tried indicate considerable benefit (and some difficulties). It seems reasonable to expect that eventually some form of consolidation of delivery services may take place in the interests of economy. When that time comes, the consumers may have to be content with less choice or less service because they cannot expect the choice and the service they are getting now without paying for it.

MILK CONTROL LEGISLATION

The legislation under which milk control boards operate in Canada is provincial, as it is regarded as the right of the province to regulate by licence persons engaged in the production, buying or selling of any commodity in a purely provincial way. In the United States the information is that the state milk control laws are supplemented by federal legislation where milk has to cross state boundaries, since inter-state commerce is under federal jurisdiction.

Up to the present the right of the provinces to enact milk control legislation has been upheld in Canada, principally on the ground that the business is intra-provincial. The legislation has been appealed in Saskatchewan as contrary to the Combines Investigation Act, the Criminal Code, and the British North American Act. The Saskatchewan Court of Appeal dismissed the appeal. The Ontario Milk Control Act was also recently upheld in the courts.

There is some deviation in method and procedure by which boards are empowered to act. Otherwise the statutory powers conferred upon boards are much the same. They include the right to license producers, etc., of milk, to establish price schedules, to provide for bonding of dealers where it is not otherwise already in force, and generally to supervise all aspects of the production, supply, distribution or sale of milk. There is, in parts of the United States, according to information from there, provision for "blending" the price of milk according to the use to which it is put. By this principle definite control over the so-called "surplus" is assumed and, provided the basis of blending the price is a proper one, the principle appears sound. It may have its disadvantages but it recognizes the necessity of surplus and of a practical means of dealing with it.

QUALITY—AND CO-OPERATION WITH HEALTH AUTHORITIES

An important angle of milk control is the maintenance of quality. This, including sanitation and freedom from infectious disease, is the responsibility of health authorities—in most cases city medical health officers and boards of health. Close co-operation with these departments is essential and is maintained by boards. Price schedules are designed so as not to force a relaxation of vigilance in this, so important a matter. Also the issue of licences by boards generally requires proof of approval by the health authorities concerned.

MILK MARKETING BOARDS

No attempt has been made in this paper to deal with marketing boards as operated in British Columbia and elsewhere. They approach the problems of the milk supply from one angle; control boards from another. I believe that, whatever the angle, the results, to be permanent cannot be much different in either case except that, under marketing boards, the flow of all milk can be directed and not merely that entering the fluid trade. In either scheme results must tally pretty closely with the mutual interests of all persons involved.

FUTURE OF MILK CONTROL

Any attempt to foretell the future of milk control could only be a personal conclusion, based on its brief history. One thing is certain—it will remain as long as it works, and as long as no better plan takes its place. In the legal tests to which milk control has been submitted it has been found valid, although the New York State legislation together with federal legislation to govern inter-state shipments of milk to that state, awaits the judgment of the United States Supreme Court. The fact of its validity in this country allows Canadian boards to proceed with a certain amount of confidence, but even the validity of legislation does not ensure its success. Results count, and the future depends on what milk control can do. This, in turn, depends on the co-operation that is elicited from those involved.

Milk control is still in force in every province in which it has so far been adopted. While complete co-operation was not always forthcoming this does not seem to be the case today. It has been acceptable to the trade as a steadying influence; it is appreciated by health officials because it has strengthened their hands. Hence it seems a fair inference that the operation of boards, so far, is standing the test of time and that it continues to serve the industry acceptably.

No doubt the functions of boards will change. Time and experience modify law as well as individual habits, and evolution is natural. What the evolution will be I would not attempt to say. Doubtless, some of our duties will remain; some will be taken away and new ones added. Whatever form functions of boards may take in the future, I believe that the more co-operation is elicited, and the more the industry is encouraged to help itself, the better and more lasting the results will be.

REFERENCES

Milk as a Public Utility, W. R. Cottingham, K.C., Chairman, Municipal and Public Utility Board, Manitoba (1933).

Annual Report, Milk Control Board of Ontario (1938).

Annual Report, Milk Control Board of Manitoba (1938).

Biennial Report of Milk Administrator, Connecticut (1937–38).

Orders of the Secretary of Agriculture, Washington, D.C., U.S.A.

Orders and Price Calculations, Marketing Administrator, New York State.

Milk Marketing in California, J. M. Tinley.

Personal Correspondence:

A. O. Marrin, Milk Control Board of Manitoba.

C. M. Meek, Milk Control Board of Ontario.

H. N. Flewelling, Dairy Products Commission, New Brunswick.

W. J. Bird, Secretary, Dairy Arbitration Commission, Nova Scotia.

Oscar Boisvert, Secretary, Quebec Dairy Commission.

MILK MARKETING SCHEME OF THE LOWER MAINLAND OF BRITISH COLUMBIA[1]

W. E. Williams
Lower Mainland Dairy Products Board, Vancouver.

The Milk Marketing Scheme of the Lower Mainland of British Columbia was created by order of the Lieutenant-Governor in Council, pursuant to powers conferred by the British Columbia Natural Products Marketing Act, Revised Statutes of British Columbia 1936, Chapter 165.

Under this scheme the Lower Mainland Dairy Products Board was appointed and provision made for the appointment of the successors to the present Board. The scheme conferred very broad powers upon the Marketing Board to pass by-laws or orders regulating the marketing of milk in the Lower Fraser Valley Area.

The scheme also conferred power on the Marketing Board to designate an agency through which milk is to be marketed by the producers. The Agency, in turn, is to sell the milk to distributors and manufacturers. The price at which the Agency may sell milk to distributors for the fluid milk market is fixed by a by-law of the Marketing Board.

Before a single agency was designated by the Marketing Board a plebiscite of the producers was held as to whether the producers were in favour of marketing control of milk, and whether they favoured a single agency and an equalization of returns from the sale of the milk.

The former plebiscite passed with a majority of 84 per cent and the latter plebiscite with a majority of 83 per cent. Generally speaking, the 16 or 17 per cent opposed were those producers who were selling a very high percentage of their production on the fluid milk market.

The producers also decided that they desired the agency to be a non-profit corporation, managed exclusively by directors who are also producers. Two directors were selected, one by the producers who have been marketing milk through the Fraser Valley Milk Producers Co-operative Association and the other by the independent producers. These two were to select a third director, and if they could not agree the Marketing Board was to nominate the third member. The third member was nominated by the Marketing Board.

These two elected directors, and the director nominated by the Marketing Board, were elected by the members of the Agency Corporation as the Directors of the Corporation. The Agency is named the Milk Producers Clearing House Co-operative Association.

At the present time some of the producers who have been selling a large percentage of their milk in the fluid milk market area, and some of the distributors, have brought actions.

First, for a declaration that the directors of the Clearing House were improperly elected with the result, as they contend, that the Clearing House is without directors and is incompetent to function.

[1] Address delivered before the Eleventh Annual Meeting of the Canadian Agricultural Economics Society at Vancouver, B.C., June 19–22, 1939, held in conjunction with the Nineteenth Annual Meeting of the Canadian Society of Technical Agriculturists.

Second, for a declaration that a portion of the scheme is beyond the scope of the British Columbia Natural Products Marketing Act, and because the by-laws of the Marketing Board are in fact passed pursuant to the questioned section of the scheme; that the by-laws of the Marketing Act are *ultra vires* of the Statute.

The Supreme Court dismissed both actions. The Plaintiffs in each case have appealed and the matter at the present time is before the Court of Appeal. An injunction has been issued by the Court of Appeal pending the hearing which is to be held very shortly. The result is that the machinery for operating the Single Agency or Clearing House is all set up and ready to go, when and if the Court of Appeal permits.

A word of explanation follows as to how the by-laws of the Marketing Board have provided for the operations of the Clearing House.

(1) All the milk produced in the area and marketed in the area must be sold to the Clearing House. All other marketing of milk by producers is prohibited.

(2) The Clearing House will control the handling of the milk, and will pick up the milk at the milk stand of the producers.

(3) The milk will be delivered to the receiving platforms of the various dealers and manufacturers.

(4) The inspectors for the Clearing House will receive the milk, test it for flavour, odour, etc., take samples for the computation of butterfat content, weigh it and turn it over to the distributor or manufacturer as the case may be.

(5) Distributors will be charged for the milk on the basis of the butterfat content the price to be fixed by the Marketing Board.

(6) The milk sold by the Clearing House to manufacturers will be subject to an auction, or negotiated price depending upon the market price for butter, cheese, etc. Some will be sold for ice cream, some for evaporated milk, and the balance for butter, cheese, casein, powdered milk, etc., and the prices will vary with the purposes for which the milk is used. These prices for manufacturing purposes are matters between the Clearing House and the buyers.

(7) Settlement Periods: Purchasers of milk from the Clearing House will be required to pay for same bi-monthly, and to furnish bonds or security that such payments will be made.

(8) The Clearing House will settle on a monthly basis, but at the end of each calendar month will pay approximately 50% and on the 15th day of the month following will settle in full with a statement.

(9) Only milk from Grade A and Grade B dairy farms will be eligible for the fluid milk market, when shipped in cans. All milk from Grade C dairy farms or ungraded farms will be eligible for manufacturing purposes only.

(10) All milk shipped in cans must be pasteurized for the fluid milk market.

(11) The only milk eligible for the fluid milk market as whole raw milk (or unpasteurized milk) will be preferred raw milk, bottled on the dairy farm of the producer.

(12) The Marketing Board has adopted bases and quotas. A base is the average daily shipments of a producer during the first three and last three months of each calendar year. The percentage of all eligible milk sold on the fluid milk market during each calendar month, when multiplied by a producer's base, is his quota.

(13) The Clearing House will pay each producer the fluid milk price for the amount of his quota and the manufacturing price for the balance of his shipments.

There is a substantial amount of milk eligible for the fluid milk market in excess of the amount of milk actually consumed on the fluid milk market. Until the Clearing House is in operation and statistics are obtained from that source it is difficult to estimate the amount of that excess, but it is probably 30 to 40 per cent. It is this eligible surplus which is the major problem of the Marketing Board. If it were not for this surplus of eligible milk, all eligible milk would be sold on the fluid milk market, and there would be no serious reason for marketing control beyond possibly a price fixing order to assure to the farmers a fair return for their milk.

The Clearing House is purely a public service corporation. It makes no profits and declares no dividends. It collects for the milk sold by it, deducts its expenses and apportions the balance of the moneys amongst the producers, thus effecting equalization of returns to the producers of milk according to quantity and quality.

It is doubtful whether the Marketing Board has satisfied anyone to date. The Clearing House idea, and the orders regulating it are generally satisfactory to about 83% of the producers but they are impatient because of the delay, and some are not pleased with the minimum base of two pounds butterfat fixed by the Marketing Board. Others of them consider that the Marketing Board should not have passed a consumer price order. They point out that the producer has no interest in the matter after the milk is sold by the Clearing House to the dealers and is paid for, and they have no faith that the dealers will willingly abide by the order fixing prices to the consumer. They feel that to enforce the price order will require an expenditure which must come from the producers' milk can.

There is some force in this argument and if the dealers do not co-operate it may be necessary to repeal this order. On the other hand, the penalties for breach of an order are severe and involve the suspension or cancellation of the licence which is a very serious matter.

It does cost money to enforce the orders of the Marketing Board. The British Columbia Natural Products Marketing Act provides that the penalties go to the municipality where the charge was laid and there is always expense in securing evidence and conducting prosecutions. If half the fines went to the Marketing Board it would help to defray those expenses.

The dealers of course are dissatisfied. Consumers are afraid that they may have to pay much higher prices for milk. It is believed, however,

that if the Clearing House is permitted to function, the great majority of the producers will realize a substantial advantage and their support will be based on improvement in their condition.

The orders of the Marketing Board purport to fix the price to the dealers at 53 cents per pound butterfat, the understanding being that commencing August 1, 1939, the price is to be revised. This short period at 53 cents per pound butterfat was to give the dealers time to consolidate their routes.

The dealers, realizing that the orders of the Marketing Board will compel them to pay higher prices have attacked the orders in the Court.

The distribution cost is much too high in Vancouver. Until the Court has disposed of the issues now before it there is no fixed price from the producer to the dealer, and each dealer is operating under contract with producers or producer agencies. It is probable the average rate received by the producer today for milk sold for the Vancouver fluid milk market is not much above 40 cents per pound butterfat, which is a ruinous price to the farmer, and much below what is paid for milk supplied to any other large city in Canada.

The dealers and producer-vendors have been left free to compete for consumer customers. In so doing they have cut prices, or have sold milk with a very high percentage butterfat content at standard milk prices or have accepted customers scattered widely apart. The result of this competition means a large number of vehicles to serve the customers. In many cases the customers are receiving relatively more value than they are entitled to receive, at the expense largely of the producers.

LEGAL PROBLEMS IN RELATION TO MARKETING LEGISLATION[1]

T. G. Norris, K.C.
Vancouver, British Columbia.

When I was asked to speak to you today on legal problems in relation to marketing legislation, it seemed to me that as there has been so much litigation in connection with this legislation and the matter is in such a state of "trial and error", so to speak, it would have been the part of discretion for me to have borne in mind the Biblical injunction that "a fool uttereth all his mind but a wise man keepeth it in till afterwards" and to have declined the honour. However, I did appreciate the honour and I felt, too, that perhaps I might be sure in addressing you that what I have to say would not, as the police say, be taken down and used as evidence against me on some future occasion.

In Canada during the past five years and indeed in British Columbia for over twelve years, the legal problems on market control which have been foremost, particularly in the Courts, have been those which arise under our federal system out of the allocation of powers to the Dominion and Provincial Governments under the British North America Act. In the main, these problems arising out of the constitutional aspect of the matter fall under two general classifications: *First*, the problems which arise through uncertainty as to whether the control attempted to be exercised by the marketing boards is in its "pith and substance" the regulation of trade and commerce or is really a matter of property and civil rights within the province. *Secondly*, problems which arise because of the fact that, as our country develops, matters originally of local concern tend in the course of time to become matters of Dominion concern.

With regard to this latter classification of problems, it is always difficult to determine when the boundary line has been crossed and matters, originally of provincial interest only, have become matters of Dominion concern. There will always be some overlap and the test will always be as to what the "pith and substance" of the legislation is. Because of dicta in certain of the judgments, there has been an inclination in some quarters to interpret the term "the regulation of trade and commerce" with reference solely to provincial boundaries. It seems to me that this test is much too narrow. The proper test would seem to be *not* as to whether the legislation in its operation is confined within provincial boundaries but whether in its pith and substance it relates to property and civil rights within the province; for example—the regulation of a particular trade in the Province—is it a matter of a purely local or private nature or is it really a general regulation of trade and commerce such that it affects the body politic of the Dominion. It might be that the regulation of trade and commerce between Vancouver and Kamloops would be just as much a matter of Dominion concern as the regulation of trade and commerce between Vancouver and Calgary. In every case, it must be ascertained from the facts whether the legislation is really in its

[1] Address delivered before the Eleventh Annual Meeting of the Canadian Agricultural Economics Society at Vancouver, B.C., June 19–22,1939, held in conjunction with the Nineteenth Annual Meeting of the Canadian Society of Technical Agriculturists.

essence a regulation of the larger sphere of trade and commerce or is the regulation of a particular trade within the province—a matter of purely local and private nature.

Because of the growth of our country, in view of the complexities of modern civilization, in view of the growth of general business, in view of the swifter means of transportation and communication, the increasing development of the Dominion aspect of our activities is natural. Today there are very few lines of endeavour in respect of which the operations of our citizens can be said to be purely local and to have no extra-provincial effect. It would seem to be clear that when that extra-provincial effect has grown to such an extent as to become a matter of Dominion concern, the mere fact that the operations which bring it about are confined within provincial boundaries is not sufficient to enable us to declare that it is a matter of a local or private nature and within the provincial jurisdiction.

It is unfortunate that in the last test case on marketing legislation taken to the Privy Council—the case of Shannon *vs.* Lower Mainland Dairy Products Board—the full case in respect of marketing legislation was not presented and could not be presented in view of the facts in the case. The case dealt with a product which was not a subject of inter-provincial trade. It was urged strongly in that case that the marketing under question therein was purely intra-provincial as the Act was confined to dealings with such products as were situate within the province, and the transportation of those products was confined to the passage of goods in transport from one place within the province to a destination also within the province. Had the regulation under review been the regulation of a product which was the subject of inter-provincial trade, such as fruit, the judgment would have been that much more valuable. To all intents and purposes, it would seem to leave the very important and much-litigated question of trade and commerce or property and civil rights practically untouched. The only argument advanced on this question against the Act as proper provincial legislation was that the use of the word "transportation" in the Act *might* cover carriage of goods in transit from one province to another or overseas. In the judgment, the Court held that the wording of the Act was such that it was intended only to cover such transportation as began and ended in the province.

The Shannon case is of very considerable interest in as much as in part it overrules the judgment in Lawson *vs.* The Interior Tree Fruit Marketing Board against the Produce Marketing Act—passed in British Columbia in 1927—in respect of the levies imposed under that Act. The Privy Council held in the Shannon case that, even though the object of licences was partly directed towards the regulation of trade, the charging of a fee was none the less properly within the provincial jurisdiction as it was in part for the purpose of raising a revenue. Again we are brought back on this aspect of the matter to the basic question as to what the real substance of the legislation was—whether it was direct or indirect taxation, direct taxation within the Province being within the Provincial jurisdiction and indirect taxation within the Federal jurisdiction. Each case must be decided on its own merits in an effort to determine what the pith and substance is and whether the legislation affects matters of Provincial or Dominion concern. The Shannon case is interesting also

in that it holds that in the matter of price fixing the Province has jurisdiction over products not only produced in the Province, but those which are situated in the Province, having been brought in from outside. This power has been confirmed by the Court of Appeal in this Province in the recent case on the powers of the British Columbia Coal and Petroleum Board. The question was a very live one a few years ago when a Sheep Marketing Board was anxious to control the sale in the Province of lamb imported from the Province of Alberta.

Before closing this branch of the discussion some notice should be taken of the closing words of the judgment of the Privy Council in the Reference on the Dominion Natural Products Marketing Act in 1937. Lord Atkin used the following words: "The Board were given to understand that some of the Provinces attach much importance to the existence of marketing schemes such as might be set up under this legislation and their attention was called to the existence of Provincial legislation setting up Provincial schemes for various Provincial products. It was said that as the Provinces and the Dominion between them possess a totality of complete legislative authority, it must be possible to combine Dominion and Provincial legislation so that each within its own sphere could in co-operation with the other achieve the complete power of regulation which is desired. Their Lordships appreciate the importance of the desired aim. Unless and until a change is made in the respective legislative functions of Dominion and Province it may well be that satisfactory results for both can only be obtained by co-operation. But the legislation will have to be carefully framed, and will not be achieved by either party leaving its own sphere and encroaching upon that of the other."

At the present time, we are without Dominion marketing control legislation. If marketing legislation is to operate satisfactorily in the provinces there should be complementary Dominion legislation to cover the sphere of jurisdiction allotted to the Federal Parliament, particularly in respect of trade and commerce—inter-provincial and foreign trade and the levies which may be imposed to carry on the schemes under the Dominion legislation. Until such legislation has been enacted, there will always be the attempt of the provinces to stretch their jurisdiction beyond the true scope of the powers allotted to them under the British North America Act; and worse still, there will be the attempt by the marketing boards existing in the provinces, fearful because they are not able to achieve the control which is necessary to the stabilization of marketing while adhering strictly to the provincial powers to extend those powers over matters which fall under the Dominion jur sdiction under the guise of administering their duties under the Provincial Act. It is regrettable that this course has been followed by more than one of the marketing boards in this province. It has even been suggested by members of one of the boards that, even though the Board may not have the powers which it purports to exercise, the members propose to carry on their illegal operations because an attack—which might even lead litigants to the Privy Council—is too expensive for individuals to undertake. This enunciation of the theory that the end justifies the means is thoroughly unconscionable and is one of the things which has brought marketing boards into bad repute.

The matter last-mentioned naturally brings up the second phase of this discussion—the legal problems which arise in connection with the administration of marketing boards. Mr. W. E. Williams has dealt with the administrative problems in relation to such boards. As these problems are many and varied, so are the legal problems connected therewith. In the administration of their schemes, members of boards often forget that the legislation should not be administered as class legislation for the benefit only of the producers of the product under control. Their main argument in support of the legislation always is that the majority rule must govern. By the majority they mean a majority of the people of the class to protect which the legislation primarily was enacted. Therein lies the basic fallacy of their argument. They have failed to realize that their actions affect the people of Canada as a whole, that in these days of close inter-provincial relationships, no one province—no one class within the province—can shut itself up within a compartment and say: "This is our business. What we do affects us alone and the consuming public of Canada need not interest itself." All our social legislation enacted—perhaps it may be said for the benefit of certain classes—has been enacted only because it received the support, not merely of the classes who benefit directly, but the support of all the people. Such legislation is administered by boards, it is true, but by boards under the direct control of the Government and responsible to the Government. The Government under our democratic system must take full responsibility for them and for their actions. Otherwise, in respect of these boards, we set up a system of class fascism. If the legislation is to succeed it must obtain popular support—and by popular support I mean the support of all the people—producers, consumers and the trade. Those charged with the administration of the statute must see to it that they do not lose that support by unwise and unfair administration of the powers allotted to the boards.

As an instance of improper administration, there has been an attempt in this Province to deal with racial questions by a marketing control measure designed to control the marketing of natural products. If Orientals are considered a menace, they should be dealt with properly by exclusion or other legislation designed directly to meet the ill. An effort has been made to control the Orientals in their marketing without giving them representation—even of a minor character—on the boards of regulation. I realize that, particularly in connection with vegetable marketing schemes, difficulties which have arisen have been largely caused through the competition of Chinese, but it would seem to be idle to suppose that where these people produce such a great proportion of the product as they do in this province, they can be controlled in their marketing without representation. The attempt has been made to control them without giving them a vote or any say as to how the products they produce, upon which they spend their labour and their money, shall be marketed. It used to be said that one of the basic principles of our Anglo-Saxon freedom was that there should be no taxation without representation and yet this situation exists in the case of the Chinese. This ill advised policy can only lead to endless litigation.

Further, there is an inclination on the part of certain marketing boards to lead the producers to believe that the powers of the boards extend much

further than in fact they do. In one instance, for example, under a board having powers only under Provincial legislation, an order-in-countil was passed giving the board power to regulate packing houses in which the product was packed. The board shut its eyes to the fact that this power was a power given merely as incidental to marketing within the province. The power was treated as a substantive power and the board passed orders affecting the product which was packed in the grower's packing house in the Province but was marketed outside the province and threatened prosecution unless the shipper obeyed the orders of the Board affecting the packing of the product which was intended only for export out of the province. These regulations and others have been passed by boards in the hope that they will "get by" notwithstanding the fact that members of the boards must realize, and in fact in many cases have been warned by their legal advisors, that when their regulations reach the Courts they will be declared illegal and bad. There is a continued effort to do indirectly that which may not be done directly. All these things lead to litigation. It is perhaps not too much to say that had the powers which certain of the Boards purport to exercise been stated plainly in the bill before it was submitted to the Legislature it would never have passed the Legislature. In other words, legislation has been passed by the Legislature with one intent and purpose and is administered by boards for some collateral purpose, certainly for some purpose which was not in the minds of the legislators when the bill was passed. Doubtless, the Courts will deal with such matters in due course but it is expensive for the individual to attack these unauthorized acts of certain of the boards, outrageous though they may seem.

As long ago as 1857, the Courts in England referring to the high-handed action of a Board with very wide powers stated: "In coming to this conclusion the importance to the public welfare of the duties to be performed by the Defendants has not been overlooked. Considering the importance of the purposes to be effected by these boards, it seems the duty of the Court to discountenance any proceedings tending to baffle or obstruct the legitimate exercise of their powers. But where a fair question arises whether they are legitimately and properly exercising such enormous powers, it would seem to be the duty of the Court, where even a doubt arises, to take care that every check which the Legislature has provided has its due operation in favour of the person complaining of the undue exercise of the arbitrary power, unless in some urgent case where imminent danger to the public health would ensue from any delay in the exercise of the arbitrary power.

"Another matter not to be overlooked in cases of this kind is the expensive nature of the litigation and the inequality in that respect of the contending parties. The Defendants seem to consider themselves free from all personal risk of costs. Even if they should be wholly unsuccessful, the ordinary penalty of the payment of the costs personally—a penalty calculated materially to check a litigious spirit—does not affect the Defendants. If they should at any stage of this litigation be condemned in costs, instead of their being obliged to provide them out of their own private funds, those very costs must be raised by a rate of which the successful Plaintiff may have to pay his own proportion."

In the next year, another Court referred to similar actions on the part of the same Board in the following words: "I observe that Mr. Corsellis [Counsel for the Board] in one of his affidavits, speaks of carrying out the spirit of the Act. It may be as well therefore to caution these Defendants, that, entrusted as they are by this Act with very extensive powers, it is their bounden duty to keep strictly within those powers, and not to be guided by any fancied view of the spirit of the Act which confers them."

In our own province, the present Chief Justice of the Province in speaking of similar matters said: "It is not for me to criticize the bestowal of the almost despotic powers here enjoyed by the commissioners, of which much was said in argument, because it must be assumed that the Legislature acted in the public interest in bestowing them, but a Court of Justice in an application such as this to its discretion cannot be unmindful of the way in which they are exercised and as they are great so they ought to be exercised in a corresponding spirit of discretion and due moderation entirely freed from any element of the "mailed fist" or the "jack-boot", the enormity of which methods we have heard so much about as formerly administered by the Germans in Alsace-Lorraine and have experienced too much of late in certain quarters in our native land of Canada. This case brings to my mind the apposite statement of Lord Justice Farwell (which my own long judicial experience fully confirms) that 'the Courts are the only defence of the liberty of the subject against departmental aggression'. To the autocratic mind the assertion of the rights of the public is always offensive however beneficial to the best interest of the people, of which no better example can be found than the case of Rex *vs.* Hampden—the judgment pronounced in which case against Hampden was based as Clarendon saith, "upon such grounds and reasons as every stander-by was able to 'swear was not law' ".

An example of the failure to respect this principle occurs often in connection with the attempt to seize and dispose of products which it is alleged are being marketed otherwise than in accordance with marketing acts. It has been a practice to make such seizures without a previous hearing and without affording the unfortunate shipper an opportunity of appearing and stating his case. As long ago as the beginning of the eighteenth century, one of our learned English judges said with regard to a similar matter on trial before him: "The objection for want of notice can never be got over. The laws of God and man both give the party an opportunity to make his defence if he has any. I remember to have heard it observed by a very learned man upon such an occasion that even God Himself did not pass sentence upon Adam before he was called upon to make his defence. Adam, says God, Where art thou? Hast thou not eaten of the tree whereof I commanded that thou shouldst not eat? And the same question was put to Eve also."

These judgments of a hundred or so years ago should find a place on the desks of all those charged with the administration of marketing legislation today.

May I make it quite clear that I do not say that the actions of all the marketing boards are subject to the criticism which I have made. Some

of them have performed and are performing a very useful function and are rendering a real service but their efforts have been stultified because of the matters referred to.

Many of the legal problems arising out of the administration of marketing acts are new but the principles of law which furnish the answer to them are very old. Lord McMillan, that distinguished Scottish jurist, said in a case of another kind: "The grounds of action may be as varied and manifold as human errancy and the conception of legal responsibility may develop in adaptation to altering social conditions and standards. The criterion of judgment must adjust and adapt itself to the changing circumstances of life." Those words are true in connection with the application of our law to the new problems arising in relation to the administration of marketing legislation. It will be noted that it is not said that the principles of law change. It is simply that in their application pace is kept with the ever-varying types of human relationship, new inventions, new circumstances, new modes of living. Therefore, in the administration of our law, we must ever be guided by the basic principles which have found their place in all codes throughout the ages and particularly in the great Common Law of England and which have been stated and re-stated many times and for which men have lost their freedom and suffered and died. These principles have been indicated to you. Perhaps it is sufficient to state that they require the highest standard of honesty and fair dealing and particularly in the administration of statutes which impinge upon the Common Law.

To sum up then: Firstly, on the much vexed question of conflicting jurisdictions, the statement of Lord Atkin in the Reference on the Dominion Natural Products Marketing Act makes it abundantly clear, as it must have been clear already to those who have made a study of constitutional law, that the question is largely a matter of careful draftsmanship and that if those in charge of the preparation of such legislation, having the requisite legal knowledge, will take advantage of the experience gained throughout the years by persons who have been concerned with the legal difficulties arising from the practical application of market control measures, legislation which should stand the test of litigation can be drafted by the Dominion and by the Provinces—each jurisdiction co-operating with the other but each covering only the sphere of activity outlined for it by the British North America Act.

Secondly, to succeed, the legislation must be adequately framed for the protection of all classes of the public, administered fairly for the benefit of all classes, honestly propounded—and in this connection the demagogue must be left at home—and have as its basis the confidence of the people at large—a confidence engendered of understanding by education. Today the people of Canada as a whole—and I say it regretfully—do not believe in marketing legislation as a remedy for the ills of the primary producer. Until the public of Canada is brought to that belief it is idle to convey to boards the semblance of authority which cannot in reality be enforced, because there is nothing more true than that legislation can exist only by the will of the people, that unpopular laws can

never be successful and that the popularity which is required is the popularity not with any one class but with all our people.

Time alone can tell whether marketing legislation can ever be a success in this country. Its failure to date has been due to a failure to obtain popular support. In a large measure the opposition of the public has developed because of the weakness of personnel and the disinclination on the part of board members to obey the injunction of the Learned Judge that as the powers bestowed are great "so they ought to be exercised in a corresponding spirit of discretion and due moderation".

FACTORS AFFECTING EFFICIENCY IN DAIRY FARMING[1]

H. R. Hare[2]
Department of Agriculture, Ottawa.

As commercial agriculture has developed, the demands placed upon farm management have increased. The competition for markets has become greater which, from the consumer's standpoint, assures him of an abundant supply and provides him the opportunity of greater choice. To the producer of farm products, however, the responsibility of making correct choices of enterprises and selecting the most advantageous type of farm organization have become increasingly important problems.

The successful farmer today realizes that the business of farming is not static, and he attempts to prepare himself to make necessary shifts of both the enterprises to be used and the methods of operation. Studies which have been conducted in many countries show that farming success differs markedly within every locality. Few businesses are as difficult to conduct with financial satisfaction as farming. In spite of this the percentage of registered farmer failures over a long period of time is less than in urban industry. The explanation lies in the fact that farming, in addition to being a business, is a "mode of life". The operator of the farm may secure abundant satisfaction from it, even though his living standard as interpreted in this commercial age may be low. In such cases it is quite possible that the farmer's family may fail to find satisfaction in either the joy of the work or in financial remuneration.

An interesting comparison may be drawn between management as applied to urban and rural industry, and a tribute is due to farm operators throughout Canada, who have made a splendid job of farm management when one considers their handicaps. In Canadian urban industry between 1920 and 1930 there was an average of 25 workers for each industrial plant. For each farm there were slightly more than 2 workers. Conditions since then have changed little. For each urban industry on this basis there is an average of more than 10 times the workers per unit than on the farm. This means that urban industry has ten times the number of workers from which to choose management personnel. It is evident when one considers the salaries paid for management in urban industry that equal management ability is not common heritage. In agriculture we expect every second worker in the industry to assume the rôle of manager, while in urban industry one man only need step forward from the line of 25 workers to become the director of operations. Further it may be stated that the apprenticeship method in vogue in urban industry permits training within the plant, whereby the beginner gradually through many progressive steps moves up the ladder to the post of manager. In farming the worker is either hired man or manager. The progress to management is a much steeper climb. It is one step in place of 24. These are hazards of no mean scale which confront farmers. Close observation of their achievement in Canada in times which have been difficult provokes commendation.

---

[1] Address delivered before the Eleventh Annual Meeting of the Canadian Agricultural Economics Society at Vancouver, B.C., June 19–22, 1939, held in conjunction with the Nineteenth Annual Meeting of the Canadian Society of Technical Agriculturists.

[2] Senior Assistant Agricultural Economist, Agricultural Economics Division.

The rapid move of agriculture into the commercial field and the recent upheaval in marketing programs has increased the burden of the farm manager, and places additional research and instructional responsibility on those who attempt to provide leadership. The subject of farm management or the study of the business associated with farming has not yet assumed its rightful place in the curricula of our Canadian educational institutions. Canadian farmers were never so anxious to learn and apply methods of increasing the efficiency of agricultural production.

The Economics Division, Dominion Department of Agriculture, Ottawa, has conducted research in the farm management field in several areas of Canada, but attention is here directed most particularly to a study of the dairy farming business in Ontario as a means of revealing the factors affecting efficiency in this type of farming. This project is being conducted jointly by the Ontario Agricultural College, Guelph, and the Economics Division, Ottawa, in co-operation with the organized milk producer bodies of the Province. The first year of this study ended June 30, 1937, and extended over a crop year that was disappointing due to drought over a greater part of the area. The results reveal striking variations in the net returns to milk producers from farm to farm within immediate communities. Studies of a similar nature in other parts of Canada and in other countries have, at other times, shown similar wide differences in the farm business returns. As in urban business, some operators do well while others hold on only with great difficulty.

The "operator labour earnings" is the term used to express the net returns in cash and in kind received by the farm operator for the labour and management which he applied to the business. The average and range of the operator labour earnings is shown in Table 1 for the milk market groups studied.

Table 1.—The average and range in operator labour earnings by market groups. Ontario dairy farm management study, 1936–37

Milk market groups	No. of farms	Operator labour earnings	
		Average	Range
		$	$
Whole milk	491	566	−1879 to 5511
Concentrated	91	475	−2197 to 2553
Cheese and cream	198	450	− 773 to 4526

As set forth in Table 1, the comparatively large sample of farms of each market group reveals a wide range of operator labour earnings between the highest and lowest. The greatest range is in the whole milk group, where it amounts to more than $7,000. One cannot with accuracy gauge farming by the net returns from any one year of operation, but wide variations in net returns are characteristic of all such studies.

There are several conditions which are responsible for this great difference in income. Some of these conditions come within and some are beyond the control of the operator. A farmer may suffer a reverse due to

unfavourable weather in any one year, but over a period of years he may learn, through experience, the kind of climate to expect and can make adjustments in his business accordingly. Price hazards may be met with some degree of success by a study of markets and market information. Success in farming does not come by accident but by means of careful planning.

FARM MANAGEMENT FACTORS.

Before the farm manager begins to effect adjustments in his business, he should make a careful survey to determine the points where changes may most effectively be made. The use of some form of farm accounts whereby a summary of the year's business may be made is the most effective means to this end. This fundamental undertaking is so simple that too many scoff at its possibilities. There is a great need to reduce the fear of farm accounting and to create for it an appreciation of the positive force which it might be in the business of agriculture. We progress by moving from the known to the unknown. With data relative to the individual farm business in hand, one may compare this with similar data pertaining to many farms of the same type of business and locality, and thereby secure a comparative efficiency rating of the individual business. An efficiency rating of five farm management factors provides a sound basis for the determination of the strong and weak points of a farm business. These factors refer to efficiency in: *(a)* the use of land, *(b)* live stock and live stock product production, *(c)* the use of labour, *(d)* the use of capital, *(e)* the scale of operation or size of business.

The satisfactory rating of farm business is dependent on research whereby standards of measurement may be established. These standards will probably differ for different types of business and for different localities.

Practically the whole of the farmer's income is derived through the application of effort in the production of crops and live stock of various kinds. The good farm operator aims to secure high production per unit in his crop and live stock enterprises. High production per unit, however, may be derived without regard to the other factors of production such as labour and capital. One of the main criticisms of our farming is the failure to give due stress to these two very important production and management factors. Costs are involved in their use and efficiency needs to be considered in regard to these costs. The factor of scale of operation or size of business wields a great influence on net income, depending upon the efficiency rating relative to the other four factors. This is strikingly portrayed by analysis of the data pertaining to the whole milk farms of the Ontario Milk Study. When the farms were sorted with the first four factors below average for the group but above average in size, the operator labour earnings were $69. With all factors rated above average including size, the operator labour earnings were $1,923. Changes to be effected in the size of farm or volume of business should be considered in relation to efficiency concerning the other four mentioned factors.

For each of the five factors, many different measuring rods may be applied to ascertain the comparative efficiency of the individual farm business among a group under study. The effect of varying degrees of efficiency in the five farm management factors on operator labour earnings

and on the cost of producing 100 pounds of milk, is shown in Tables 2–6. The basic data used are those of the Ontario whole milk shipper farms for the year ending June 30, 1937. The measures used in rating the different farm management factors were as follows:

Farm Management Factors	*Measures Used to Rate the Factors*
1. Size of business	Adjusted acres.
2. Use of land	Crop index.
3. Live stock and live stock product production	Milk production per cow.
4. Use of labour	Cash receipts for each 12 months of labour.
5. Use of capital	Years for cash receipts to equal total value of all farm capital.

Size of Business

Several other measures may be applied to rate the size of business, such as total acres, crop acres, total farm capital, total income, or number of animal units. The adjusted area, the measure here used, is obtained by reducing the rough pasture and wooded area to a common feed production basis. It is estimated that approximately three acres of rough pasture or ten acres of wooded pasture would produce feed equal to one acre of tillable land. This figure is added to the tillable acreage of the farm and called adjusted area. The average adjusted area of these farms was 122 acres, 91 of which were in crop.

TABLE 2.—THE EFFECT OF SIZE OF BUSINESS AS MEASURED BY ADJUSTED ACRES ON OPERATOR LABOUR EARNINGS AND MILK COST ON WHOLE MILK SHIPPER FARMS OF ONTARIO FOR THE YEAR ENDING JUNE 30, 1937

Adjusted acres	Number of farms	Average adjusted acres per farm	Average labour earnings	Milk cost per 100 lb. of milk
			$	$
Under 90	83	67	338	2.20
90 – 119.9	103	99	471	2.14
120 – 149.9	78	129	574	2.06
150 and over	97	233	865	2.05
All farms	361	122	566	2.10

Table 2 shows that size of business was a factor of considerable importance as a means of increasing the operator labour earnings and reducing the cost of producing 100 pounds of milk. Each increase of area produced an economic advantage over the smaller acreages. It is of interest to note here that a wide range in operator labour earnings and in milk cost existed in each group. It would appear that it is not a matter of acreage only, but one chiefly of building up a large volume of business on the acreage at the disposal of the dairy farm operator.

Use of Land

Crop yields are particularly important as a means of using land economically. Table 3 presents an analysis of the data classified on the basis of crop yields. The crop index is used as a measure of efficiency in

this regard. A farm having a crop index of 100 would be one where the yield of all crops would be equal to the average of all farms. Higher or lower crop indices would represent yields that are above or below the average yields shown below.

Average Crop Yields

	Bu. per acre		*Bu. per acre*
Oats	30.7	Wheat	24.5
Barley	30.0	Mixed grain	29.4
Corn (grain)	34.6	Buckwheat	21.0
	Tons per acre		*Tons per acre*
Corn silage	7.4	Clover and timothy hay	1.5
Alfalfa hay	1.75		
Mangels	12.6	Turnips	8.7

TABLE 3.—THE EFFECT OF EFFICIENCY IN LAND USE AS MEASURED BY CROP INDEX ON OPERATOR LABOUR EARNINGS AND MILK COST ON WHOLE MILK SHIPPER FARMS OF ONTARIO FOR THE YEAR ENDING JUNE 30, 1937

Crop index	Number of farms	Average labour earnings	Milk cost per 100 lb. of milk
		$	$
Under 80	44	67	2.33
80 – 99.9	85	318	2.14
100 – 119.9	122	558	2.06
120 and over	110	965	2.03
All farms	361	566	2.10

The crop yield is shown, in Table 3, to have a very decided effect on the farmer's net returns and his milk cost. Every effort should be exerted toward securing a high yield per acre of crops by using high yielding varieties adapted to the locality and by studied cultivation.

Live Stock and Live Stock Product Production

The average "milk sales per cow" was used as a measure of determining the efficiency in live stock work. In that the greater part of the live stock revenue came from cows, this measure serves quite well.

TABLE 4.—THE EFFECT OF EFFICIENCY IN LIVE STOCK AND LIVE STOCK PRODUCT PRODUCTION AS MEASURED BY MILK SALES PER COW ON OPERATOR LABOUR EARNINGS AND MILK COST ON WHOLE MILK SHIPPER FARMS OF ONTARIO FOR THE YEAR ENDING JUNE 30, 1937

Milk sales per cow	Number of of farms	Average milk sales per cow	Average labour earnings	Milk cost per 100 lb. of milk
lb. per year		lb. per year	$	$
Under 6,000	73	4,990	259	2.46
6,000 – 7,499	120	6,462	533	2.17
7,500 – 8,999	107	7,847	763	2.00
9,000 and over	61	9,867	652	1.88
All farms	361	7,067	566	2.10

The operator earnings increase with the increased sale up to 9,000 pounds per cow. Beyond that point, they are reduced. Milk costs are reduced consistently with an increased sale of milk per cow even beyond 9,000 pounds per cow. Producers of milk for whole milk markets of Ontario may be encouraged to increase the milk sales per cow even beyond the 9,000 pound mark.

Use of Labour

A simple measure, in determining the efficiency in the use of labour, is that of the relationship of the cash receipts of the farm to the number of persons employed for 10 months on farm work. The cash receipts include all cash income for the year. The labour employed may be reduced to months and divided by twelve. This gives the number of man units of labour applied during the year. This figure divided into the cash receipts provides a worthwhile measure of efficiency.

In applying this measure to the Ontario whole milk producer's business for the year ending June 30, 1937, it was found that the average cash receipts per man were $1,203. The data are shown classified on the basis of the cash receipts per man in Table 5. High cash receipts per man are shown to have a very outstanding effect in the economic operation of dairy farms.

TABLE 5.—THE EFFECT OF EFFICIENCY IN THE USE OF LABOUR AS MEASURED BY CASH RECEIPTS PER MAN ON OPERATOR LABOUR EARNINGS AND ON MILK COST ON WHOLE MILK SHIPPER FARMS OF ONTARIO FOR THE YEAR ENDING JUNE 30, 1937

Receipts per man	Number of farms	Average labour earnings	Milk cost per 100 lb.
$		$	$
Up to 900	82	30	2.31
900 to 1,199	115	344	2.19
1,200 to 1,499	98	744	2.05
1,500 and over	67	1,342	1.91

Use of Capital

The relationship of the annual cash receipts to total value of farm capital is the measure applied in determining the efficiency in the use of capital. It is a measure relating to the rate of turnover in the business.

Compared with urban industry the capital turnover on farms tends to be slow. The Dominion Bureau of Statistics reported for the year that the annual sales in fruit and vegetable stores were 21 times their closing inventory values, grocery stores 8.4 times, meat markets 27.4 times and gas filling stations 17.0 times their year-end inventory values. On the whole milk shipper farms it required an average of 4.7 years of cash receipts to equal the total farm capital. The velocity of turnover in fruit and vegetable stores on this basis is 98.7 times as fast as that of the average whole milk farm of Ontario. Owing to the comparatively small inventory value in the case of the fruit and vegetable store where the store itself is frequently

rented, the comparison is not on an equal basis. It does, however, convey some idea of the relative rate of annual turnover in the fruit and vegetable stores as compared with the farm. In Table 6 is shown a classification of data relative to the Ontario whole milk producers' business on the basis of years required for cash receipts to equal the total value of farm capital.

TABLE 6.—THE EFFECT OF EFFICIENCY IN THE USE OF CAPITAL AS MEASURED BY THE NUMBER OF YEARS FOR CASH RECEIPTS TO EQUAL THE TOTAL FARM VALUES ON WHOLE MILK FARMS OF ONTARIO FOR THE YEAR ENDING JUNE 30, 1937

Years for cash receipts to equal total farm capital	Number of farms	Average labour earnings	Average milk cost per 100 lb.
		$	$
Over 6	78	−26	2.33
5.1 – 6	79	287	2.21
4.1 – 5	99	580	2.07
4.0 or less	106	1,194	1.92

The effect of the economical use of capital is a very great factor in dairy farming where capital values tend to be comparatively high. In the Ontario whole milk production business, the operators should aim to build up annual cash receipts equal to one-quarter of the value of all farm capital.

THE CUMULATIVE EFFECT OF ABOVE AVERAGE EFFICIENCY IN ALL FARM MANAGEMENT.

Tables 2 to 6 show the effect on operator labour earnings and milk cost of varying degrees of efficiency of the five farm management factors. A wide range of efficiency is noted to prevail with regard to each of these factors. It would be unreasonable to expect a high degree of efficiency in all factors for all farmers. In Table 7 an analysis is presented of the data pertaining to the business of the Ontario whole milk producers, which shows the cumulative effect of above and below average efficiency in the several factors. There were few farmers who achieved above average or below average efficiency in all factors. The range between the two groups in average operator earnings and in milk cost is, however, particularly striking. An attempt should be made on the part of each farmer to learn the factor or factors which indicate low efficiency in his farm business and strive to make improvements at these points.

TABLE 7.—THE EFFECT OF FACTOR RATING OF ALL FARM MANAGEMENT FACTORS ON THE OPERATOR LABOUR EARNINGS AND MILK COST OF 362 WHOLE MILK SHIPPER FARMS OF ONTARIO FOR THE YEAR ENDING JUNE 30, 1937

Rating of factors	Measures used*	No. of farms	Operator labour earnings	Milk cost per 100 lb.
			$	$
5 Factors below average	1, 2, 3, 4 and 5	28	28	2.32
4 Factors below average	1, 2, 3 and 4	37	135	2.31
3 Factors below average	1, 2 and 3	47	269	2.30
2 Factors below average	1 and 2	105	380	2.31
1 Factor below average	1	198	479	2.11
Average of all farms	0	362	566	2.10
1 Factor above average	1	162	682	2.08
2 Factors above average	1 and 2	84	806	2.00
3 Factors above average	1, 2 and 3	43	1,294	1.91
4 Factors above average	1, 2, 3 and 4	35	1,560	1.82
5 Factors above average	1, 2, 3, 4 and 5	23	1,923	1.77

* 1—crop acres; 2—milk sales per cow (lb.), 3—crop index; 4—cash receipts per man; 5—years for cash receipts to equal total farm capital.

The measuring rods which have been used to rate the efficiency of the farm business relative to each of the five farm management factors have been set forth either in the tables or in the discussion pertaining to these tables. These (may I call them standards?) are based on average achievement of all business studied and may vary from locality to locality. There is, however abundant justification for the establishment of these or other standards for communities which may serve well as a basis of improving management efficiency of farms in the Dominion and thereby add to the net return of our Canadian farmers. A common approach to this whole problem of establishing farm management standards is a task to which workers in this field may well give earnest consideration.

An attempt here has been made to use measures which are familiar to farmers, and those farmers who have kept a record of their farm business will find the measures easy to apply to their farm business. Achievement above the average brings its reward and may well be attempted. Those farm businesses which rate relatively low in one or more of the five factors as determined by these measuring rods provide the greater opportunity to make improvements in the business method of conducting affairs and in resulting net income, providing the farm operator responds by making adjustments.

The final report sent to each co-operator in the study contains a detailed statement of his own business, that of the average of all farms of his immediate community that ship milk to a similar milk market, and also of a number of the most successfully operated farms of that group. These serve as a guide to the co-operator in determining the strong and weak points of his farm organization. This financial report is further illustrated by means of a pictorial chart (Figure 1). The rating of each farm management factor is shown by a pencil mark across each thermometer scale.

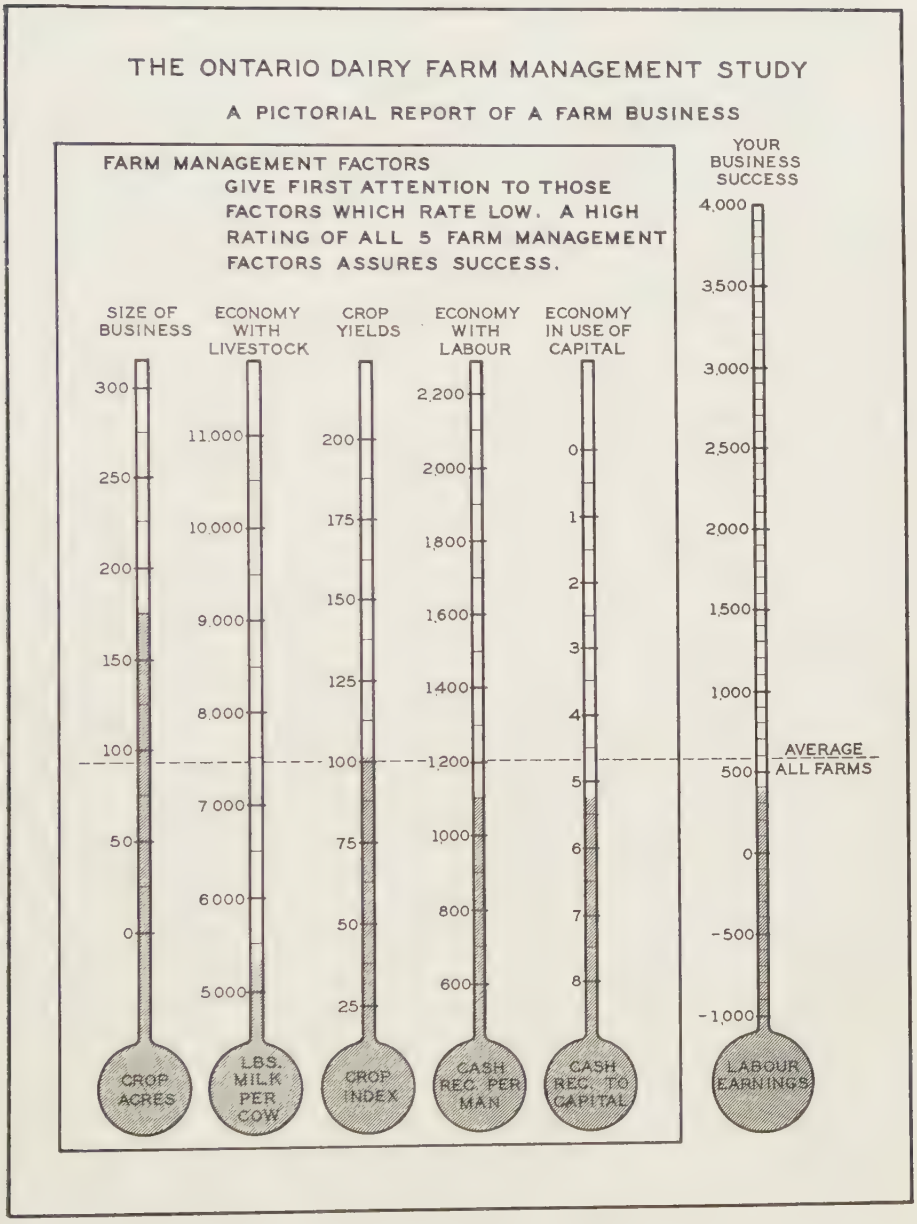


FIGURE 1.

By these means attempts are being made to assist our co-operators with their management problems, and through them and the data which they provide, their communities.

During the past few years farmers have been forced to direct an increasing amount of their attention to the problems associated with the management of their farm business. Never, I believe, has the opportunity

for workers in this field been greater. Farm management is not a cure-all for agricultural ills, but by its use a method is provided whereby farmers may help themselves. It reveals to them the intense need for the application of correct production technique. This in turn creates a keen and genuine demand for the services of the production specialist. The farm management economist and the production specialist can render a great service for the farmers by close harmony in their activities. In this way they can do their full part in pointing the way to an increased number of Canadian farmers to so operate their farms as to secure for themselves and their families that desired worth-while living.

THE HISTORY OF AGRICULTURE IN BRITISH COLUMBIA[1]

MARGARET A. ORMSBY.[2]

In British Columbia as elsewhere, farming was naturally coincident with settlement. When their supplies ran out, the early fur traders and gold miners either raised crops themselves or became dependent on neighbouring farmers. As the population became more concentrated, agriculture became an industry, and today ranks with lumbering and mining as one of the province's greatest sources of income.

As far as we know, the first clearing of land and sowing of seeds was at Nootka Sound in the year 1786. During the latter part of the 18th century, sailing vessels had carried from England to her foothold on the Pacific Northwest Coast, agricultural products and livestock. But no attempt was made to grow crops until John McKay, left to recuperate after an attack of scurvy, planted his garden with seeds brought from Europe and Asia. The following year, 1787, he abandoned his plot and his goats and sailed from Nootka with Captain and Mrs. Charles W. Barkley on the "Imperial Eagle". The Spaniards who took over the little establishment, added to it by erecting fortifications and enlarging the garden. Don Pedro Alberni planted new crops and cared for a band of livestock which included black cattle, swine and goats, and a flock of domestic fowls, including hens and turkeys. When Captain George Vancouver took over the settlement from Bodega Y. Quadra he obtained in addition to the buildings, a well cultivated plot of land.

As maritime fur-trading declined, the overland fur traders made more and more trails through the forests and travelled by rivers and lakes into what is now the interior of British Columbia. Alexander McKenzie's overland trip from Canada, David Thompson's voyage down the Columbia river, and the incessant rivalry between the Hudson's Bay Company and the North West Company, all stimulated exploration and the penetration into the rich fur-bearing country. In 1811 the Astorians, David Stuart and Alexander Thompson made their way up the Columbia River to Okanagan Lake and over to Kamloops to look for beaver. In the spring of the same year, David Harmon at the North West Company's post at the foot of Stuart Lake, had cleared at Fort St. James the land for the first garden site on the Canadian mainland west of the Rocky Mountains. There he planted a small area with potatoes and sowed the seeds of onions, carrots, beets, parsnips and barley. For five years he struggled against the ravages of wild animals, insects and late spring frosts, but eventually from the seeds brought from the "old Establishment" developed by Peter Pond in the Plains Country, he raised his first fine crop. His example was followed by the factors at Fort Fraser, Fort George and Fort Alexandria, and soon each of the posts could boast of self-sufficiency in agricultural produce. In addition to being the station for distributing supplies to the fur traders, Fort Alexandria became noted for the production of cereal grains and as the centre of a flour mill with stones imported from Europe.

---

[1] Address delivered before the Eleventh Annual Meeting of the Canadian Agricultural Economics Society at Vancouver, B.C., June 19–22, 1939, held in conjunction with the Nineteenth Annual Meeting of the Canadian Society of Technical Agriculturists.

[2] Sarah Dix Hamlin School, San Francisco, California, U.S.A.

Fort Kamloops became the centre of horse-breeding and horse-training, for it supplied the horses required for the fur brigades which wound their way from Fort St. James down the Fraser, over to Okanagan Lake and southward to Fort Vancouver, the Hudson's Bay Company's depot on the Columbia.

The building of Fort Victoria commenced in 1843, when James Douglas foresaw the renunciation of the British claim to the territory south of the 49th parallel. Most of the supplies and furnishings of Fort Vancouver were then moved to Vancouver Island, while many of the company's horses and cattle were transferred to Kamloops where the bunch grass was plentiful. With the abandonment of the old brigade trail down the Okanagan Valley and the building of the new trail from Fort St. James to Fort Langley, Fort Victoria and Fort Langley came into increasing importance as bases of supplies. The land about Fort Langley was famed for its fertility. Soon quantities of butter were being produced for sale to the Russians in Alaska.

Climatic and soil conditions were also favourable around Fort Victoria. The Hudson's Bay Company had splendid farms on Vancouver Island at Uplands, Colwood, Metchosin and Macaulay Point. There was also a farm on San Juan island which was stocked with cattle brought from Fort Nisqually. For many years produce and meat were shipped from these farms to Alaska.

Apart from the company's farms, there was little private enterprise. In 1849 the renewal of the charter of the Hudson's Bay Company had granted to the company the whole of Vancouver Island on condition that it be colonized. But settlement was slow, since the regulations of the company stated that every purchaser of 100 acres had to bring out from England five labourers or three married couples. Moreover, the company retained 10 square miles of land in and around Victoria and fixed the price of land at one pound an acre. Across the Gulf of Georgia free grants were being made in Oregon. At the time of Governor Blanshard's departure from the colony in 1851 there were only 15 independent settlers, and by 1856 the number had only increased to 300. But in the spring of 1858 there was a sudden influx of nearly 30,000 miners on their way to the newly discovered Fraser River gold diggings.

As Victoria became a metropolis, there immediately developed a great demand for farm products. To satisfy it, the colonists of Vancouver Island tilled virgin land, and the colonists of British Columbia cut dense underbrush, drained marshes and planted crops. The first application for farming land on the mainland was made in November 1858 when W. K. Squires applied for a grant of 100 acres on a Fraser River island opposite Hope. He received a lease pending legislation permitting the sale of land. Shortly afterwards Governor Douglas issued the first pre-emption ordinance enabling the pre-emption of 160 acres of land with the right to purchase at a price of 10 shillings an acre.

Royal Engineers were sent out from England to build roads so that commerce and industry might flourish in British Columbia. New Westminster became the centre of settlement on the mainland. Around it were gardens and cornfields carved from the wilderness. All products sold at

the mines brought fabulous prices. The discovery of the Cariboo gold fields in 1859 led to further immigration and to the expansion of the settlements of merchants and traders. The construction of the great wagon road to the Cariboo gave access to the market, and agriculture received its first great impetus.

In 1862 one observer declared that the prices obtained by the Vancouver Island farmer for wheat, barley and oats compared favourably with those in England. But production was still insufficient to supply the demand, and the farmer suffered from the competition of products imported from Oregon, Washington and California "with their cheap land and cheap labour". Unsuitable tracts of land useful only for grazing were being utilized and more fertile areas had not yet been cleared. All butter was still imported and no cheese was manufactured. Crops were grown as a side-line and few apart from the cattlemen had knowledge of the natural advantages and capabilities of the country. There were too many speculators and too few ranchers with experience and knowledge of proper farming methods. Goldmining was the primary industry, farming, a secondary.

Yet land was being taken up in the interior, and along the Cariboo road a chain of farms with road houses was established. Pressure on the food supply led Governor Douglas to encourage the importation of sheep and cattle from Oregon. Soon ranches in the Okanagan and around Kamloops, Lillooet and Cariboo were commencing partially to supply the demand and to command famine prices. Cattle ranching which had existed in the Okanagan Valley since the priests established their mission at Okanagan Mission in 1859, flourished as local gold flurries at Rock Creek and Mission Creek provided an accessible market. When the population of Cariboo began to dwindle after 1865, the cattlemen found a market in the Kootenay mines, where they had to fight the stiff competition of American cattlemen. When these mines in turn became unproductive, markets were found in the growing Coast cities of Victoria, Nanaimo and New Westminster. For years cattle-ranching was carried on on a large scale. As late as 1891, the land in the Okanagan Valley north of the boundary line was owned for a distance of 20 miles and a width of one and one-half miles by the estate of Judge J. C. Haynes and by Theodore Druger. Thomas Ellis owned all the land north of Penticton for a distance of 15 miles. In 1895, he absorbed the holdings of the Haynes Estate, thereby extending his land to Osoyoos. In 1892 there were nearly 20,000 cattle in the territory extending from Osoyoos to Spallumcheen, although there were probably no more than 400 settlers in the Okanagan Valley.

The land laws had made possible the acquisition of these large ranches at reasonable prices. East of the Cascade Range, tracts of 320 acres of Crown land could be recorded for pre-emption and paid for at a price of one dollar an acre, the sum payable in instalments. Six hundred and forty acres of Crown land might be purchased outright at a minimum price of five dollars for first class land, two dollars and a half for second class and one dollar for third.

Large scale farming was encouraged by the stimulus agriculture received as the result of demands for supplies for the construction work on the Canadian Pacific Railway. After the completion of the railroad in

1885, the population of the province increased rapidly. During this period, wheat growing thrived in the North Okanagan Valley, and in the record year 1884, production per acre in this area was from 50 to 70 bushels. Some people felt, however, that confederation with Eastern Canada had not brought the material benefits it should, and that trade and commerce were languishing. Others thought that in time the North West Territories and the Canadian provinces would serve as markets for production which could not be absorbed in British Columbia.

By 1890 there was definite interest in the science of agriculture. The government then organized the Department of Agriculture to foster interest in horticulture, live stock raising and dairying. A Market Commissioner was appointed to gather information about marketing conditions on the prairies.

By this time the large holdings in the Okanagan Valley were being subdivided into small lots for fruit growing. Diversified farming was the rule in the Fraser Valley and on Vancouver Island. In the Similkameen and north of Kamloops where there was little density of population, large scale farming, either cattle-ranching or wheat-growing, continued. In these areas the farmers were self-sufficient, since they raised all the commodities they required.

Toward the end of the century the Klondyke excitement gave a new incentive to farmers. But the wheat growers were feeling the competition of the prairie wheat and complaining of the chronic congestion of the market. In 1895 more than 30 carloads of flour were shipped from Enderby to the Japanese government but the production soon fell off. The yields were still large on the lower mainland, but for milling purposes, the product was inferior.

Discussion of improved farming and marketing methods had already begun. In 1887 the nurserymen of Victoria formed an organization and in 1889 the British Columbia Fruit Growers' Association was organized. At its initial meeting delegates were present from Lytton, Chilliwack, Ladner's landing and Victoria. Almost contemporary were the Farmers' Institutes organized by the government to encourage production under improved conditions. R. H. Palmer, Thomas Cunningham and others were sent out to investigate conditions and to meet with the members of the institutes for the purpose of discussion. They urged the adoption of high standards of cultivation. Their efforts resulted in increased production. As late as 1905, the value of imports exceeded local production by $2,000,000, but in 1911 home production for the first time exceeded imports.

The most significant development during the nineties was the commencement of fruit-growing on a commercial scale. Fruit trees had been raised since 1851 when James Douglas planted a few near Victoria. Between 1864 and 1880 Thomas Earle made large plantings around Lytton and in 1874 Thomas Ellis set out trees on his ranch at Penticton. George Whelan and Alfred Postill also started small orchards at Kelowna in 1875 and 1876. The first commercial planting in the Okanagan Valley was in 1892 when Lord Aberdeen had 200 acres planted at each of his ranches, the Guisachen at Kelowna and the Coldstream at Vernon.

Although the fruit was of fine quality, the industry prospered slowly. Trees had been purchased with little knowledge of local conditions. One pessimistic writer warned in 1897 that the fruit exhibited at fairs was so good "as to give a probably exaggerated impression of the extent and character of fruit-growing generally in the Province".[1]

> "Strangers to this Province, who have for a long time heard of its fruit-growing capabilities, would undoubtedly be surprised that more has not been accomplished under conditions so favourable; but the truth is that the industry began wrong, and has practically to be recreated in order to obtain desired results, The selection of proper varieties in due proportion, the preparation of the soil, the husbandry of the trees afterwards, the picking, and what is equally important, the marketing of the fruit are all features of the industry requiring attention and each is essential to ultimate success.[2]"

Early mistakes were not soon eradicated, but the Okanagan fruit farmer did not despair for in the nineties the depression set back fruit growing in Eastern Canada and his prices were fair.

Between 1900 and 1910 there was a fruit land boom in the Okanagan Valley. The benches at Kelowna and the hillsides at Vernon were planted in 1906, expensive irrigation works were constructed and in the British Isles the newly formed land companies extolled the attractions of living in the Valley. Land values increased from one dollar an acre in 1898 to $1,000 an acre in 1908. Inflated values and the excessive cost of the construction of large irrigation works were largely responsible for the collapse of the boom in 1910 and for the depression which followed. Between 1912 and 1914 tree planting in the area stopped altogether and many orchards of poor varieties on unsuitable land went out of bearing. The shipments of apples from British Columbia to the prairies in 1913 totalled 276 cars. Forty-four cars of peaches and eight cars of apricots were also shipped. During the war the industry was practically at a standstill but after 1919 new areas were coming into production. By 1921, the acreage in fruit trees in the Okanagan Valley as compared with 1901 had increased 674 per cent. Before 1921, the average annual production of apples in British Columbia was 1,500,000 boxes; after that date it rose to 3,156,000 boxes and today is well over 5,000,000.

Until 1921, agriculture in British Columbia was in an experimental stage and the farmers were governed in the planting of their crops by the size of the local market. Most of their attention went to solving problems of cultivation and production. Once they had mastered the technical side of agriculture they began to produce for markets outside the local field. With the lessening of the cost of production which resulted from improved technique, they attempted to compete on Canadian and export markets with other producing centres. They were handicapped, however, by the distance they had to ship their products. High freight rates increased the selling price of commodities which had to compete with those raised by American farmers at a lower cost on more fertile land with a more accessible water supply. The British Columbia farmer vigourously denied that his province was as the easterners said a "sea of mountains", but

[1] R. E. Gosnell, Manual of Provincial Information, Victoria, 1897, 84.
[2] Ibid. 85.

had to admit that too often the land was productive only after building expensive irrigation systems and that too often crops were destroyed by disastrous late spring and early autumn frosts.

Possibly these elements of danger did more than anything else to force the agriculturists to attempt to evolve marketing systems which would work effectively in placing local products on the market and obtaining the highest possible profit for the primary producer. In the fruit industry therefore, in which there was large surplus production, there was developed one of the most continued important experiments in Canada in the line of co-operative marketing.

In the early nineties, the British Columbia Fruit Exchange with local organizations at Chilliwack, Mission City, New Westminister, Kelowna, Salmon Arm, Port Haney, Victoria District was established to market fruit on co-operative principles and to develop the markets of Manitoba and the North West Territories. At that time, R. M. Palmer, Thomas Earle, G. W. Henry, president and manager of the fruit exchange, and E. Hutchison visited the interior giving advice and arousing interest in co-operation. There was such lack of confidence in the movement and so many petty jealousies among farmers, that they found headway difficult. More than one farmer stated his belief that individual effort would continue until the commencement of the millenium. Although it was known that middlemen were forming pools in cattle buying, there was "not a particle of unanimity amongst the farmers".

The fruit growers eventually heeded the advice to band together to solve their difficulties. Since their first shipments of apples to the prairies in the nineties, they had discovered that they were at a disadvantage in competing with Ontario farmers who were nearer the markets and could ship their fruit at low rates to Manitoba. The cost of transportation had also discouraged them after their attempt to invade the British market in 1903. The prairie market, shared with Ontario and Nova Scotia and Washington until 1912, was glutted in that year by large exports from Washington and Oregon.

The British Columbia fruit growers' first attempt at co-operation, the Okanagan Fruit Union formed in 1908 had been unsuccessful in uniting the growers. Its successor, the Okanagan United Growers, formed in 1913 was more successful. This was a co-operative central selling and distributing agency for which the government advanced 80% of the subscribed capital. Costs of operation were offset by levying fixed charges on all packages handled. All sales over certain period fixed by the association were pooled. Advances were made to the growers up to a certain percentage of the estimated value of the produce delivered. About 1,100 growers joined the association. As a result, British Columbia had almost complete control of the prairie market by 1923, supplying 82% of the apples consumed, as against 9% imported from Eastern Canada and 9% from foreign points. Furthermore, it was a protected market, the tariff of 33 cents a box raising the price higher than the world price. But complete control of the market, which would prevent flooding and the depression of the price level proved impossible to hold. Of the large crop of 1921, the Okanagan United Growers could ship only 324 carloads of its 1,287 to the

prairies. Selling prices were at rock-bottom, and the grower instead of receiving a cash return was assessed part of the marketing bill.

Since better organization was necessary, in the spring of 1923 the Associated Growers of British Columbia, Limited, was organized. Many shipping houses were amalgamated with co-operative packing houses. About 2,700 growers entered the agreement and the contracts secured control of 80% of the apple production for five years. The crops were to be delivered by the grower to the local association for packing, while the Associated Growers did the selling. When at the end of the five-year period a yearly contract went into effect, the percentage of tonnage handled by the association was somewhat decreased to the advantage of the independent shippers in the Valley who had placed their products on a preferred market.

Prolonged competition between fruit shippers continued to debase the prairie market. In addition, the Commission appointed to investigate the distribution of fruits and vegetables revealed certain allegedly dishonest practices among middlemen. With falling prices and increased distress in the fruit growing districts, the Provincial Government attempted to remedy conditions by passing in 1927 the Produce Marketing Act which created the Committee of Direction. This body consisted of three members, the chairman appointed by the government, and the other two by the British Columbia Fruit Growers' and Shippers' Federation, an organization composed of the Associated Growers and most of the independent fruit shippers. All shippers were licenced. The Committee set a minimum price for the sale of products on the dominion market but not on the export. In addition, it had the power to determine prices and terms for the sale and delivery, to determine the quantity or proportion of the commodity to be marketed and to name the places of shipment. It could hold inquiries and compel the attendance of witnesses and the inspection of books. Representatives on the principal markets reported the shipments arriving in their territory from other centres and quotations on their markets from other concerns. In spite of all these precautions, the co-operative group of farmers failed to gain control of the prairie market, although underbidding was stopped. But the adjacent markets in Alberta, Saskatchewan and Manitoba were supplied by independent shippers of the Okanagan Valley and by American shippers.

Conditions were somewhat improved in 1930 by the levying of a duty of one-half cent a pound on American apples coming into Canada, and by the Committee of Direction assuming new functions. From the hands of the shippers, it removed the power of making quotations and controlling distribution, and insisted on compulsory price pooling. The prairie provinces, however, were suffering from the effects of the depression, and lower prices for wheat meant lower buying power. Impatient with unsatisfactory returns, many of the fruit growers of the Okanagan had joined the independent shipping firms or become grower-shippers. In the spring of 1931, the last vestige of control disappeared when the Supreme Court of Canada declared the Produce Marketing Act unconstitutional. There could be no further interference with provincial trading or exacting of levies for the purpose of controlling the marketing of produce.

Attempts were being made to interest the growers in a central selling agency which would deal through the existing wholesale channels, replacing the brokerage houses, when the Royal Commissioner, W. Sanford Evans who was investigating the fruit industry, advocated the return to the conditions of unrestrained competition. Most of the growers felt that such a step would increase the disadvantages of the Okanagan fruit in competition with American fruit. They consented, therefore, to the establishment of a Shippers' Council, to which belonged between 80 and 90% of the shippers. The Council was assisted by a Bureau of Information established by the government to publish daily reports of all sales. Lack of complete co-operation and of legal authority to control the action of members who refused to abide by its decisions greatly reduced the efficiency of the Council. At the end of the season, t had no report of some 800 cars of fruits and vegetables which had been shipped from the Valley.

Faced with the marketing of the largest crop in the history of the Okanagan Valley and the prospect of uncontrolled shipments, late in the season of 1932, 90% of the shippers agreed to the formation of a cartel to proportion the share of the domestic and export markets. On the domestic market each shipper was permitted to sell 40% of his tonnage, for which the cartel fixed a minimum price. Internal competition continued unabated, for the cartel had no power to fix penalties for violation of rules and there was disregard of the established shipping dates, prices and marketing regulations. At one time fruit was sold in Vancouver for $12.50 a ton.

Late in the season of 1933, with a still larger crop than that of 1932 to be marketed, the shippers had failed to agree on an efficient marketing scheme and were selling apples at ruinous prices. A militant "cent a pound" movement sprang up among the growers, and by tactics, later proved to have been of an intimidating nature in some cases, all of the 52 fruit shippers in the Valley were forced to become members of the Board on which growers had equal representation. Vigilance committees and picketing by growers in some cases prevented the debasement of prices. The Okanagan Stabilization Board demanded compulsory co-operation of growers and shippers, made its sales over one desk, and defrayed its expenses by levying a charge of half a cent a box. Higher prices were obtained from sales, and the returns to the growers were more satisfactory. But the legality of the venture was called into question when a test case was brought by a shipper who refused to pay the equalization fee and the Board was forced to take action. The suit was dismissed in March 1934 by the Supreme Court of British Columbia on the ground that the Board was acting in restraint of trade and contravening the Criminal Code.

In the spring of 1934 hope was revived that control would be re-established when the Natural Products Marketing Act was passed by the Dominion Government and the Provincial Parliament immediately passed enabling legislation to put it into effect in the province. The Dominion Marketing Board was to regulate the marketing of natural products declared by orders-in-council to be regulated products, and to establish local boards dealing with one commodity. The provincial governments were to set up boards to supervise and make recommendations to the local boards. The Dominion Government had the power of investigating price

spreads and trade practices, and of regulating and controlling the operation of brokers, wholesalers and other middlemen. Some 90% of the growers endorsed the plan and approved the creation of a local marketing board, the Tree Fruit Board. The administration was placed in the hands of three representatives of the growers, W. E. Haskins, chairman, G. A. Barrat and O. W. Hembling, and three representatives of the shippers were appointed to act in an advisory capacity to them. The returns of the first year of operation of the Board proved disappointing. Various explanations were submitted. Since the crop of 1934 was the largest yet, 4,700,000 boxes as compared with 3,500,000 in the previous year, a larger amount had to be exported. This suffered in competition with the large crop in England. Other factors were the increase in freight rates and the disadvantage of the exchange rate.

When, however, in the spring of 1935 a ballot was taken as to whether the growers wished to continue marketing under the scheme, about 90% voted in favour.

The following year the Supreme Court of Canada held the Dominion act to be *ultra vires*, and the decision was upheld by the Privy Council. During 1936 a voluntary arrangement was made by 90% of the growers to continue the control along the lines exercised the previous year. Dissatisfaction with poor returns led to revived interest in central selling and to the movement to amend the Provincial Marketing Act. A new act passed in 1937 no longer supplemented the Dominion legislation but was in itself an entity. It permitted regulated marketing of a product, should a sufficient majority of the growers wish it. The 1937 crop of 5,396,588 boxes was marketed under this scheme. About 45% of the crop was exported. In July, 1938, the new act, permitting "producer" boards to regulate local or intra-provincial sales and establishing in addition a Provincial Marketing Board, was appealed to the Privy Council and upheld as *intra vires* of provincial legislation.

The crop of 1938 was larger than that of the previous year, but of poorer quality. At the same time, conditions on the prairies were no better, and the quality of the apples produced was such that there was little demand on the export market. In order to share in the advantage of selling on the domestic market, a "one desk" plan of sales was drawn up. The shippers were asked to sign voluntarily an agreement to conduct their transactions through the British Columbia Tree Fruits Limited, which the Provincial Marketing Board designated as the sole agency for the marketing of apples. All orders were referred to the Board, which gave a *pro rata* distribution to all shippers unless a particular shipper's quota had been passed. The Board issued all invoices, made collections from the buyers and paid the shipper the proceeds of the sale after deducting brokerage charges and discounts. At the end of the season, it was felt that price wars had been averted, but still there was not complete satisfaction with the measure of control which existed.

Renewed pressure was brought on the Dominion Government to pass marketing legislation which would permit "producer" boards to regulate

interprovincial and export trade in farm products, since it was felt that some measure was necessary to take the place of the previous legislation which had been declared unconstitutional. Farmers in other sections of Canada joined in this movement.

Meanwhile the plan advocated for the season of 1939 would re-establish central selling and permit collective bargaining of the fruit growers. It would eliminate present sale agencies and provide for one agent, the British Columbia Tree Fruits Limited, to sell the crop on the domestic market, pay the packers' charges and after deducting expenses of operation, return the balance to the growers. A plebiscite held in the spring of this year showed that over 90% of the growers are in favour of such a scheme.

Co-operation in marketing has received more thorough experimentation in the Okanagan Valley than elsewhere in the province, because that district happens to have a greater surplus production of one commodity than any other. In the other fields of agricultural production the problem is modified by the fact that the provincial market consumes a greater proportion. For the marketing of vegetables, the provincial government has set up marketing boards similar to the one existing in the fruit industry. These boards have been embarrassed also by lack of unanimity among growers, unwillingness of shippers to co-operate and by "bootlegging". But on the whole, the principle seems well established that surplus production can only be marketed satisfactorily by the elimination of cut-throat competition for markets. An Order in Council passed this spring by the provincial government will consolidate the powers of the Interior Vegetable Board in the area east of Lytton to the Rocky Mountains, giving the growers the power to control transportation, packing and storing of farm products. The Board can license shippers and prohibit shipping by any agent which violates its orders.

Roughly 60% of the production of agricultural commodities today in British Columbia is from mixed farms mainly in the Duncan and Courtenay districts of Vancouver Island and the Lower Fraser Valley, the Shuswap and Okanagan districts of the mainland. These farms produce live stock, hay, grain, fodder and vegetables. The men who own them find that their income is less affected by economic depressions and that even in "bad" years, they have a cash balance. To them, the marketing problem is less serious than to the farmer who depends entirely on fruit or on vegetables or on dairying for his income. This group, then, is little interested in co-operative marketing arrangements. To the farmer who lives on part of the 15% of the land devoted to fruit-raising, and to the farmer who depends on part of the 15% of the land used for dairying, it is a different question.

The dairymen of the province have long worked together in manufacturing and marketing their products. The Provincial Dairymen's Association was formed in the nineties to establish creameries on a co-operative basis. In 1896, co-operative creameries partially subsidized by the government were in operation at Ladner and Cowichan, and soon another was opened at Enderby. The North Okanagan Creamery

Association formed in 1916 was absorbed in 1925 by the Okanagan Valley Co-operative Creamery Association. In the Lower Fraser Valley, the Fraser Valley Milk Producers' Association has done valiant work. Since 1935 there has been in force in the Fraser Valley a commodity board established by the provincial government under the Natural Products Marketing Act. A redrafted scheme recently approved by Referendum provides for the continuance of the Lower Mainland Milk Products Marketing Board. Representation on this consists of one man elected by the co-operative producers, one by the independents and one appointed by the Minister of Agriculture on the recommendation of elected representatives.

The marketing of lamb also comes under a scheme set up by the Natural Products Marketing Act. The poultry industry has benefited from the improvement of strains resulting from the testing of fowls and eggs.

Today, with agriculture established as an industry in British Columbia, each farmer is striving to receive an adequate return for his labour and investment, and many through united effort are hoping to see the establishment of a "minimum" price on the markets. Below this, they hope that no goods will be exchanged. Technical advances in crop raising and in animal husbandry have been made and production has long passed the point when it was insufficient for or only equal to local demand. But a satisfactory plan of controlled marketing of surplus production has not yet been evolved. For the farmer who has specialized in production and who depends on one crop, the prospect of adequate compensation is still precarious.

Each year brings new evidence that the land of British Columbia when properly supplied with water is comparatively highly productive. The annual revenue from the sale of dairy products is in the neighbourhood of $15,000,000. Apples and vegetables produced in the Okanagan Valley, the Kootenay and Boundary districts produce an income of nearly $12,000,000. Live stock production, chiefly in the areas around Williams Lake, Clinton, Kamloops and Nicola districts, yields roughtly $12,000,000. Production of timothy seed and clover seed is good in central British Columbia, and northern grown field crop seeds are produced in the Peace River block. Poultry raising, especially in the Lower Fraser Valley has also added to the income. Since the beginning of the century, the agricultural industry has produced in wealth $1,268,097,161 and the annual production from crops and live stock has varied from $50,000,000 to $60,000,000.

Compared with Ontario, Saskatchewan and Quebec, the total value of farm capital is small, but individual crops apart from wheat-growing stand well in comparison with those in other provinces. Agriculture in British Columbia is said to exhibit possibly a greater degree of diversity and of intensity of cultivation than in any other province. But the purchasing power of the farmer has been seriously curtailed as the result of competition on the domestic market and of the nationalistic policies of European countries which prohibit large importations. Recent revision of tariffs by the agreements made between the United States and Canada

and the United States and the United Kingdom seem to forecast still greater limitation of marketing opportunities. Should American products find greater access to the British market, the surplus production of Nova Scotia, New Brunswick, Quebec and Ontario may flood the prairies. In the meantime, it is satisfactory to note that legislation modelled on the Natural Products Marketing Act, dealing with matters within the jurisdiction of provincial govenments, has been adopted by at least five other provinces of Canada. As their crop now contributes the greatest share of the value of all commercial fruit production in Canada, the fruit growers of British Columbia feel some justification for never having abated their efforts to establish controlled marketing.

THE SIGNIFICANCE OF AGRICULTURAL PRODUCTION AND TRADE IN THE ECONOMIC DEVELOPMENT OF BRITISH COLUMBIA[a]

G. Neil Perry

Bureau of Economics and Statistics, Victoria, B.C.

The Province of British Columbia includes within its boundaries 229,938,560 acres of land[1]. A comparatively small proportion of this land area is considered suitable for agricultural purposes. Estimates place the agricultural land area of the Province to be between 14,248,000[2] acres and 22,603,000[3] acres, while it is estimated that 150,272,000 acres are barren, and 74,995,200 acres are forested[1]. Owing to the presence of parallel mountain chains which traverse British Columbia from north to south, the fertile areas have been restricted to the valleys lying between these mountain ridges. Thus far, however, in spite of the geographic limitations, the agricultural land available has been more than ample for the requirements of settlers. Only 3,541,541 acres have been occupied, and of this area only 704,956 acres have been brought under cultivation or improved.[3]

The successful exploitation of rich forest, mineral, and fishery resources has probably dimmed the recognition given to agricultural production and trade in the economic development of British Columbia. Endowed abundantly with commodities easily plucked from nature and in general demand on the markets of the world, British Columbia has long been engaged in catering to the needs of distant consuming centres. It is probably true, however, that the actual accumulation of capital in British Columbia has to a considerable extent depended upon the development of agriculture and those other industries which have permitted the Province to retain at least a portion of the purchasing power created by the exportation of its timber, minerals, and fish.

Developed first as a source of furs by adventurous traders, the Province of British Columbia has passed through numerous stages of exploitation. As a new undeveloped area the Province required the importation of capital. Land as a resource in itself was of no particular significance, but the furs, virgin forests, fisheries, and numerous mineral deposits possessed a definite merchantable value.

Agriculture first received serious consideration when the Hudson's Bay Company sought to reduce the cost of operation in their British Columbia outposts. Early fur traders visiting the northwest coast were content to trade casually with the coast Indians and possibly fill vacant spaces in their sailing vessels, not required for furs, with spars which could readily be sold in China.[4] Later, overland fur-traders operating from the Columbia River,

---

[a] Address delivered before the Eleventh Annual Meeting of the Canadian Agricultural Economics Society at Vancouver, B.C., June 19-22, 1939, held in conjunction with the Nineteenth Annual Meeting of the Canadian Society of Technical Agriculturists.

[1] Freshwater area not included amounts to 4,464,640 acres. Government of British Columbia. British Columbia in the Canadian Confederation; Submission presented to the Rowell Commission, page 28.

[2] Ibid, p. 27.

[3] Canada, Dominion Bureau of Statistics, Seventh Census. British Columbia Census of Agriculture, Ottawa, 1935, page xi.

[4] Lamb, W. Kaye, "Early Lumbering on Vancouver Island, 1844-55". The British Columbia Historical Quarterly, Vol. 11, No. 1, January, 1938, p. 31.

and from the Red River, established permanent outposts at convenient points for the convenience of their horse-brigades. After the amalgamation of the North West Company with the Hudson's Bay Company in 1821, the Governor and Committee of the Hudson's Bay Company seriously considered abandoning the whole Columbia district, which had been operated at a loss by the former company. Rather than take such a step without investigation, Governor Simpson travelled across the continent in 1824 determined to enforce the strictest economy and, if necessary, to abandon certain posts.

> "Simpson's thrifty soul was shocked at the expense of maintaining the posts in the Columbia region. He complained that everything there was on too grand a scale 'except the trade', and roundly denounced the lavish importation of 'Eatables, Drinkables, and Luxuries' which he uncovered. He was convinced that most of the posts could exist upon the resources of the country itself.[1]"

The Company thereafter introduced a policy of rigid economy,

> "Each post having a farm attached to it for the production of hay, cereals, vegetables, and such crops as would render them as nearly as possible self-sufficing in foods."[2]

Horses were raised for the large pack-trains at Kamloops where the plentiful supply of bunch-grass made the livestock industry practical.[2]

Agricultural production as effected by the Hudson's Bay Company was essentially exploitative in nature, since by utilizing the soil the Company's servants could be sustained in the Colony with a smaller portion of the funds derived from the sale of furs. It was not until permanent settlement had advanced in the area that the full benefits of agricultural production accrued to the Province.

After 1858 the fur-trading monopoly ceased, and the doors of the Mainland of British Columbia were opened freely to the gold-seeker and the trader alike. Farms owned by the Hudson's Bay Company, particularly at Fort Langley and Victoria, became providers for the large transitory population, and production was stimulated for a time. Local supplies were insufficient, however, and importation from Oregon and California grew in volume. The high transportation costs stimulated the growth of cattle ranches in the Interior nearer to the mining operations[3]. With the decline of placer-mining the stimulus to agricultural production was removed. Cattle ranchers in the interior sections pleaded for roads giving them access to the coast markets. The Hudson's Bay Company gradually dispensed with their farms as settlers attracted to the region brought new farms into cultivation.

Violent and temporary as it was in its effects, the gold rush did bring commercial agriculture into being in British Columbia. Gold valued at 39,953,168 dollars was extracted between 1858 and 1876,[4] and of this sum probably little more than the amount paid to agriculturalists actually remained within the province.

---

[1] Johnson, F. Henry, "Fur Trading Days at Kamloops". The British Columbia Historical Quarterly, Vol. 1, No. 3, July, 1937, pp. 175–176.

[2] Ibid, p. 181.

[3] "As agriculture developed, small flour-mills appeared, and in 1870 there were five mills at Hope, Yale and Lytton, two at Lillooet and one each at New Westminster, Dog Creek, Soda Creek, and Cariboo. Breweries and distilleries were started on the coast where cheaper supplies of grain were available; in 1870 Victoria had four breweries and two distilleries and New Westminster had one distillery."
Innis, Mary Q., "An Economic History of Canada," Toronto, 1935, p. 230.

[4] Innis, Mary Q., Ibid, p. 227.

The particular merits of agriculture were well recognized by the civil authorities both on the Mainland and on Vancouver Island. As early as 1859 Governor Douglas had declared that mining would not ensure the permanent prosperity of the Colony.[1] But settlers were not easily attracted to colonies so distant, and the growth of population was gradual. By 1881 there were 2,743 farms established in the Province.[2]

Economic activity was heightened in the Province during the construction and after the completion of the Canadian Pacific Railway. After 1885, capital importation increased steadily. Lode-mines in the Kootenays were opened as transportation made possible the extraction of low-grade ores. The exportation of coal from the Vancouver Island mines grew in volume. Sawn planks and boards were in demand, both abroad and in the Prairies as settlement of the newly-opened areas progressed. During this period agriculture underwent significant changes.

Commercial fruit-growing, as in the State of Washington, became feasible when transportation provided outlets. Ranching, hitherto the main branch of agriculture in the Interior, was gradually forced into those areas where irrigation or other circumstances were less favourable to orchards. Rising new railway centres attracted the dairy farmer and truck-gardener. By 1891 there were 7,451 occupied farms in the Province, including those of one acre or less.[3] Prairie farmers were given rail access to the developing Kootenay district—which had previously drawn its supplies largely from the Spokane area—after the completion of the railway through the Crow's Nest Pass. "Flour-milling and pork-packing in Calgary and Edmonton succeeded on the basis, largely, of Kootenay demands, while creameries and cheese factories grew up to supply the British Columbia markets."[4] Conversely, British Columbia fruit and vegetable growers were given rail access to the Prairie markets.

Free trade with the other Canadian provinces, established by Confederation but ineffective until 1885, brought many advantages and a few disadvantages to the British Columbia agriculturalist. The Prairie Provinces had a natural advantage in the production of grains and live stock, and importation into British Columbia, which began soon after rail communication was made, has continued steadily until the present time. It is probably true to say that British Columbia has tended to develop an agricultural economy complementary to that of the Prairie Provinces, and in particular those branches of the industry in which the Province has had some comparative advantage. Table 1 illustrates to some extent the reduced relative importance of field crops and live stock and the increasing importance of animal products, fruits, and vegetables in the economy.

---

[1] "The miner is at best a producer, and leaves no traces but those of despoilation behind; the merchant is allured by hope of gain; but the durable prosperity and substantial wealth of States is, no doubt, derived from the cultivation of the soil. Without the farmers' aid British Columbia must forever remain a desert—be drained of its wealth, and dependent on other countries for daily food."

Douglas to Newcastle, October 18, 1859. Provincial Archives, Victoria, B.C.

[2] Census of Agriculture, British Columbia, op. cit. p. xi.

[3] Census of Agriculture, British Columbia, Ibid, p. xi.

[4] Innis, M. Q., op. cit., p. 257.

TABLE 1.—AVERAGE VALUE PER FARM OF PRODUCTS, AND PERCENTAGE DISTRIBUTION, 1900–1930

Item	1900	1910	1920	1930
	$	$	$	$
All farm products	1,022(1)	1,148	1,655(3)	1,462(3)
Field crops	477	427	577	427
Vegetables	67	60	85	109
Fruits and maple products		79	221	167
Forest products	(2)	147	68	42
Stock sold alive	185	194	136(4)	117(4)
Stock slaughtered	47	24	79	151(4)
Animal products	246	217	473	496
	Per cent of total value			
All farm products	100.0(1)	100.0	100.0(3)	100.0(3)
Field crops	46.7	37.2	34.8	29.2
Vegetables	6.6	5.3	5.2	7.4
Fruits and maple products		6.8	13.3	11.4
Forest products	(2)	12.8.	4.1	2.9
Stock sold alive	18.1	16.9	8.2(4)	8.0(4)
Stock slaughtered	4.6	2.1	4.8	3.5(4)
Animal products	24.0	18.9	28.6	33.9

Between 1871 and 1900, agriculturists in British Columbia were not particularly interested in foreign markets. A small export of hides, skins, and wool to foreign countries occurred yearly. But the industry had little else to offer.

(1) Value of forest products is not included.

(2) Not available.

(3) Includes the value of greenhouse and hothouse products in 1920 and 1930, and nursery products in 1930.

(4) Limited to stock raised on farms reporting.

SOURCE: Dominion Bureau of Statistics, Seventh Census of Canada, 1931, British Columbia Census of Agriculture, page xxiv.

TABLE 2.—THE VALUE OF PRINCIPAL AGRICULTURAL PRODUCTS EXPORTED TO FOREIGN COUNTRIES FROM BRITISH COLUMBIA, 1872–1900

Year	Total principal agricultural products	Animal products	Fruits and vegetables	Other vegetable products, n.e.s.
	$	$	$	$
1872	14,435	14,293	142	—
1873	41,905	39,020	—	2,885
1874	28,296	23,000	2,011	3,285
1875	54,679	44,952	3,636	6,091
1876	36,827	33,737	117	2,973
1877	41,580	38,497	—	3,083
1878	54,059	53,597	—	462
1879	50,977	48,472	2,474	31
1880	80,383	78,934	655	794
1881	62,910	62,910	—	—
1882	78,414	77,533	284	597
1883	102,435	95,644	31	6,760
1884	64,378	62,633	130	1,615
1885	82,998	80,774	2,224	—
1886	84,196	82,348	1,791	57
1887	81,257	78,804	1,834	619
1888	79,968	79,965	—	3
1889	95,433	93,250	1,372	811
1890	102,387	94,128	1,585	6,674
1891	79,626	75,822	951	2,853
1892	81,430	77,214	3,496	720
1893	54,968	52,222	2,594	152
1894	62,425	43,121	7,030	12,274
1895	86,221	79,426	287	6,508
1896	115,446	102,737	769	11,940
1897	108,367	104,839	1,450	2,078
1898	107,550	89,909	3,064	14,577
1899	155,963	127,678	4,342	23,943
1900	215,241	204,428	3,081	7,732

Prepared from data in: Canada, Sessional Papers, 1872–1900.

Growth of the tree-fruit industry in the Okanagan Valley, which was rapid after 1892[1], brought about a change in these conditions. Surplus conditions, competition, and the urgent need for orderly marketing led to the establishment of co-operative marketing in the Okanagan Valley.[2] "As a result of this co-operative movement British Columbia had almost complete control of the Prairie market by 1923, supplying 82% of the

TABLE 3.—PRODUCTION OF TREE FRUITS IN BRITISH COLUMBIA, 1880–1930[3]

Fruit	1880	1890	1900	1910	1920	1930
	bu.	bu.	bu.	bu.	bu.	bu.
Apples (a)	28,100	76,856	240,012	575,377	1,819,994	4,608,569
Peaches		1,494	2,553	44,032	92,024	94,690
Pears	12,347	12,156	25,364	51,000	129,290	197,062
Plums		19,775	58,221	80,444	195,574	194,553
Cherries		4,227	14,445	27,417	109,041	90,717

(a) Includes crab-apples.

[1] Ormsby, M. A. "Fruit Marketing in the Okanagan Valley of British Columbia," Agricultural History, Vol. 9, No. 2, April 1935, p. 81.

[2] Ormsby, M. A., loc. cit., pp. 84–85.

[3] Census of Agriculture, British Columbia, p. xxxvi.

apples consumed in the Prairies, whereas it had shipped only 39% in 1915, 31% coming from Eastern Canada, and 30% from foreign countries, chiefly from the United States."[1]

Since 1923 an increasing proportion of the apple production has been exported, and the relative importance of the domestic market has declined.

TABLE 4.—APPLES

Year	Production		Total exports to foreign countries and other provinces		Apparent domestic consumption in British Columbia	Total export
	Tons	Dollars	Tons	Dollars	Tonnage as per cent	Tonnage as per cent
1923	—	4,145,220	52,813	3,176,701	—	—
1924	54,745	3,481,850	37,859	2,650,130	30.84	69.16
1925	59,177	3,894,210	35,940	2,587,680	39.27	60.73
1926	84,383	5,037,785	54,238	3,579,708	35.72	64.28
1927	69,978	4,909,885	45,749	3,325,952	34.62	65.38
1928	94,580	5,650,379	68,882	4,274,005	27.17	72.83
1929	71,515	4,495,448	55,630	3,660,320	22.21	77.79
1930	92,086	5,578,717	73,170	4,390,200	20.54	79.46
1931	72,701	3,099,286	58,609	2,520,187	19.38	80.62
1932	108,998	3,527,408	92,668	3,011,710	14.98	85.02
1933	101,117	4,118,833	82,035	3,412,656	18.87	81.13
1934	113,491	4,332,147	89,451	3,585,030	21.18	78.82
1935	108,039	4,319,760	85,940	3,695,420	20.45	79.55
1936	97,127	4,336,820	83,172	3,960,592	14.37	85.63
1937	121,765	5,136,458	100,828	4,561,270	17.19	82.81

SOURCE: British Columbia, Department of Agriculture, Agricultural Statistics Report.

[1] Ormsby, M. A., loc. cit., p. 85.

TABLE 7.—VALUE OF FARM PRODUCTS, BRITISH COLUMBIA, 1900–1930

	1900		1910		1920		1930 (1)	
	Dollars (4)	Per cent	Dollars (4)	Per cent	Dollars (4)	Per cent	Dollars (4)	Per cent
Field Crops	3,100,577	46.65	7,246,018	37.21	12,668,923	34.84	11,146,263	29.75
Vegetables			1,023,263	5.26	1,878,196	5.17	2,468,399	6.82
Orchard fruits	435,794	6.56	1,022 576	5.25	3,603,714	9.91	2,988,273	8.25
Small fruits			312,528	1.60	1,249,169	3.44	1,080,179	2.98
Greenhouse products	(2)	(2)	(2)	(2)	350,667	0.96	1,102,705	3.05
Nursery products	(2)	(2)	(2)	(2)	(2)	(2)	164,247	4.54
Forest products	(2)	(2)	2,490,016	12.79	1,488,327	4.09	1,090,711	3.01
Stock sold alive	1,202,607	18.09	3,290,001	16.90	(3) 2,991,472	8.23	(3) 3,042,586	7.39
Stock slaughtered	07,397	4.63	409,374	2.10	1,738,496	4.78	(3) 1,133,372	3.13
Animal products	1,599,850	24.07	3,678,433	18.89	10,392,039	28.58	11,991,612	31.08
Total	6,646,225	100.00	19,472,209	100.00	36,361,003	100.00	36,208,347	100.00

(1) Excludes values for products raised "Not on Farms" amounting to $1,720,028.
(2) Not available.
(3) Limited to stock raised on farms reporting.
(4) Figures taken from: Dominion Bureau of Statistics, Seventh Census, 1931, The Census of Agriculture, British Columbia.

A small market for British Columbia apples was developed in the United Kingdom after 1903,[1] but it was not until the Ottawa Agreements of 1932 were in effect that apple exports to Great Britain became prominent. This is shown in the somewhat inadequate figures of Table 5. The table refers to the export of fruit and vegetables from British Columbia, but in reality these figures are composed principally of apple exports.

TABLE 5.—EXPORT OF FRUITS AND VEGETABLES THROUGH BRITISH COLUMBIA PORTS TO FOREIGN COUNTRIES

FISCAL YEARS 1927–28 TO 1937–38 (1)

1927–28	$650,496	1933–34	1,199,229
1928–2	504,782	1934–35	1,294,497
19 9–30	464,785	1935–36	2,104,688
1930–31	643,278	1936–37	1,826,030
1931–32	398,163	1937–38	2,381,9 6
1932–33	1,353,740		

(1) Special statement from: Dominion Bureau of Statistics, Customs Compilation Section.

After the turn of the century the urban population increased rapidly, and the growing demand for agricultural products stimulated the dairy farmer, poultryman, and market gardener alike. The population of Vancouver including North Vancouver, rose from 29,797 in 1901 to 129,043 in 1911. Dairy farming in the lower Fraser Valley received a strong mpetus upon the completion of the British Columbia Electric Rai'way in 1910, which enabled dairy farmers in the Valley to ship fluid milk into the City of Vancouver.[2] Importation of milk into Vancouver from the State of Washington dwindled as production increased in the Fraser Valley. By 1913 milk-condensing plants were operating in this district, but it was not until 1921 that surplus milk and falling prices enabled the milk by-product industries to become firmly established.[3]

The number of hens and chickens in the Province rose from 347,252 in 1901 to 968,588 in 1911, and continued to increase thereafter.

TABLE 6.—THE NUMBER OF POULTRY IN BRITISH COLUMBIA, 1891–1931[4]

Kind	1891	1901	1911	1921	1931
All poultry	238,387	363,379	1,012,220	2,934,300	4,997,282
Hens and chickens	217,985	347,252	968,588	2,870,860	4,892,295
Turkeys	4,044	2,790	8,926	13,886	38,284
Ducks	11,823	9,551	27,898	35,910	38,174
Geese	2,914	3,786	6,808	13,644	8,891
Other poultry	1,621	(a)	(a)	(a)	(b)19,638

(a) Not available.
(b) Includes turkeys, ducks, and geese elsewhere than on farms, as these were not enumerated by separate classifications.

[1] Ormsby, M. A., loc. cit., p. 84.
[2] English, R. E., "The Dairy Industry in Canada", Toronto, 1937, p. 224.
[3] English, R. E., Ibid, p. 224.
[4] Census of Agriculture, 1931, British Columbia, p. xlii.

Egg production increased steadily from 3,437,750 dozen in 1912 to 23,768,833 in 1931. In consequence, importation of eggs declined in the same period from 1,872,000 dozen to 141,030 dozen, in the case of the Prairie Provinces, and from 3,744,000 dozen to 11,770 dozen in the case of the State of Washington.[1]

The value of animal products as a whole rose from $1,599,850 in 1900 to $3,678,433 in 1910. Agricultural production as a whole increased from $6,646,225 to $19,472,209 in the same period.

In spite of the marked advance which had been made by the agricultural industry in the Province in the first ten years of this century, agriculture was made the subject of a provincial Royal Commission in 1914.[2] Aggravated by low agricultural prices, marketing problems, and the collapse of a boom which had raised land values to artificial heights, the agricultural industry was caught in the pre-war depression. The Commissioners contended in their report that the ills of the industry could be met best by the establishment of some farm credit system. They pointed to the heavy expense in clearing much of the agricultural land and to the relative scarcity of farm labour, which together made settlement on the part of farmers with little capital a difficult process. They were of the opinion that the provision of agricultural credit would remove the farmers' incentive to seek or demand road-work as a means of supplementing the farm earnings. The advent of the Great War postponed consideration of these matters and, of course, ushered in a period of higher prices.

At the close of the Great War agriculture in British Columbia had achieved a position of major importance in the provincial economy. The census of 1921 showed the annual value of farm production had risen to $36,361,003 (Table 7), 21,973 farms were reported to be occupied, and 35,132 persons were engaged in the industry.

TABLE 8.—THE NUMBER OF PERSONS GAINFULLY OCCUPIED IN AGRICULTURE, 1881–1931

Year	Number of persons occupied in agriculture (a)	Number of occupied farms (a)	Average number of gainfully occupied per farm occupied
1881	2,743	2,617	0.95
1891	7,451 (b)	8,309	1.12
1901	6,501	10,339	1.59
1911	16,958	23,513	1.38
1921	21,973	35,132	1.60
1931	26,079	43,636	1.67

(a) Census of Agriculture, British Columbia, 1931, p. xi.
(b) Includes plots of less than 1 acre.

The general characteristics of the industry, as it exists today, were then becoming apparent. Importation from the United States was confined to agricultural products not easily produced in British Columbia under natural conditions or to products maturing earlier in the Southern regions.

[1] Department of Agriculture, Agricultural Statistics Report (British Columbia).
[2] British Columbia, Report of the Royal Commission on Agriculture, King's Printer, Victoria, B.C., 1914

Importation from the Prairie Provinces was largely confined to commodities such as wheat, livestock, butter, and other products in which the Prairies enjoyed a comparative advantage. Further expansion of agricultural production and trade in the Province of British Columbia was to be that of a dependent function in an equation in which transportation rates and population growth were the independent factors.

Agriculture, as an industry in the Dominion of Canada, has been described as "the chief single industry of the Canadian people, employing, in 1931, 28.7% of the total gainfully occupied population and 33.9% or over one-third of the gainfully occupied males. In addition, it provides the raw material for many Canadian manufactures, and its products in raw or manufactured form constitute a very large percentage of Canadian exports.[1]" Such a description would hardly provide an exact fit for the agriculture industry as it exists today in British Columbia.

TABLE 9.—PERCENTAGE OF THE GAINFULLY OCCUPIED MALES, 10 YEARS OF AGE AND OVER, ENGAGED IN AGRICULTURE IN CANADA AND IN THE PROVINCES (1)

	1891		1901		1911		1921		1931	
	Male (2)	Female	Male	Female	Male	Female	Male	Female	Male	Female
Canada	51.19	6.00	45.82	3.76	38.91	4.35	38.15	3.65	33.97	3.62
Maritimes	50.22	8.44	45.98	8.30	39.66	6.76	37.67	5.57	35.42	5.24
Quebec	51.26	4.73	44.68	1.99	36.51	2.98	33.63	2.60	27.44	2.29
Ontario	52.21	5.76	46.86	3.59	36.04	3.67	31.37	2.75	27.23	2.68
Prairies	66.02	7.49	64.32	3.77	55.85	7.91	59.53	6.71	55.80	7.32
British Columbia	18.27	2.87	13.38	2.00	12.69	2.44	17.70	2.91	16.08	3.27

(1) Canada, Dominion Bureau of Statistics, "Occupational Trends in Canada, 1891–1931", Ottawa, 1939

(2) Includes all farmers' sons, 14 years and over, whether or not gainfully occupied.

In contrast to the situation which has prevailed in the other eight provinces, agriculture in British Columbia has provided direct gainful occupation for less than 20% of the gainfully occupied since 1891 (see Tables 9 and 10). This same statement might perhaps be applied to the period before 1891 with equal assurance, although census data are not available to confirm it. Agriculture remains, however, the largest single industry providing gainful employment in British Columbia.

[1] Canada, Dominion Bureau of Statistics, The Canada Year Book, 1938, p. 223.

TABLE 10.—PERCENTAGE OF THE GAINFULLY OCCUPIED MALES IN BRITISH COLUMBIA, 10 YEARS OF AGE AND OVER, CLASSIFIED BY OCCUPATIONS, 1891–1931 (1)

	1891	1901	1911	1921	1931
All occupations	100.00	100.00	100.00	100.00	100.00
Agriculture	18.27 (a	13.38	12.69	17.70	1[illegible].08
Fishing and trapping	9.85 (b)	2.85 (c)	2.38	2.40 (f)	3.5[illegible]
Logging	3.05	3.41	6.21 (d)	6.39	4.93
Mining and quarrying	10.43	18.40	8.18 (e)	5.50	3.94
Manufacturing	12.18	21.25	9.57	11.43	12.09
Construction	8.52		9.81	7.23	7.24
Transportation	5.78		.14	8.66	10.81
Railway	1.06	15.28	3.19	3.49	2.97
Road	1.93		2.22	2.32	2.89
Trad and nance	5.74		8.84	10.08	9.[illegible]6
Service	10.69	14.28	9.18	11.87	11.25
Professional	2.89	—	2.75	3.95	[illegible].46
Personal	6.39	10.32	5.47	5.54	6.33
Clerical	1.97 (h)	3.23	3.55	5.16 (g)	4.30
Labourers	13.51	7.83	21.46	13.35	15.90
Other and unspecified	0.20	0.09	—	0.22	0.03

(a) Includes all farmers' sons, 14 years and over, whether or not reported with gainful employment.
(b) Does not include nomadic Indians.
(c) Does not include Indians.
(d) Includes pulp mill employees.
(e) Includes almost all mine and smelter employees, except clerical workers.
(f) Does not include Indians living on reserves.
(g) Includes proof-readers, shippers, weigh-men, and postmen, classified elsewhere in other years. The addition of these persons to the 1931 figure would have added 18.0% to the number of males in this occupational group.
(h) Clerical workers in government service were included with "service".
(1) Dominion Bureau of Statistics, "Occupational Trends in Canada, 1891–1931."

Although the value of agricultural production (on the farm) has increased from $6,646,000 in the census year 1900–1901 to $38,128,375 in the census year 1930–31[1] the needs of the domestic market still require the substantial importation of certain commodities chiefly from the Prairie Provinces. Fruits and vegetables are shipped to the other provinces and to a limited extent to foreign countries; but, unlike the Prairie Provinces, the agricultural industry of British Columbia does not depend on a few staple commodities, and does not depend entirely on world markets. The importance of the domestic market to the agricultural industry is shown clearly in Table 11.

[1] Census of Agriculture, British Columbia, op. cit., p. xxii.

TABLE 11.—ESTIMATED GROSS VALUE OF AGRICULTURAL PRODUCTION, IMPORTS AND EXPORTS, BRITISH COLUMBIA, 1921–1937

Year	Estimated gross value of home production (a)	Value of imports from foreign countries and other provinces (a)	Value of exports to foreign countries and other provinces (a)	Percentage of estimated home production consumed in British Columbia
1921	43,527,586	20,970,422	—	—
1922	41,408,566	17,143,322	—	—
1923	44,496,600	19,018,131	5,886,372	86.77
1924	45,066,788	16,399,502	6,022,019	86.64
1925	48,951,514	19,575,516	6,731,709	86.25
1926	52,883,770	21,059,361	8,408,638	84.10
1927	53,265,915	21,241,787	10,025,735	81.18
1928	58,644,243	21,264,081	10,328,034	82.49
1929	62,632,890	22,044,070	9,834,585	84.30
1930	55,957,734	19,436,412	,990,364	83.94
1931	40,107,635	13,419,699	6,197,005	84.55
1932	34,373,926	10,371,226	5,795,149	83.14
1933	36,647,007	10,286,232	6,436,754	82.44
1934	39,826,141	11,101,372	7,400,087	81.42
1935	42,419,992	12,777,111	7,588,777	82.11
1936	46,669,735	14,522,627	8,229,961	82.37
1937	50,024,542	16,979,774	9,336,641	81.34

(a) Figures taken from: British Columbia, Department of Agriculture, "Agriculture Statistics Report".

In this respect also, agriculture has differed materially from the other basic industries of the province, which are essentially export industries. The estimated gross value of production in the forest industry, including the manufacturing branches of the industry, amounted to $80,872,000 in 1937, and it has been estimated that in that year wood products valued at $69,416,846 were exported to other Canadian provinces ($9,909,178) and to foreign countries ($59,510,668) leaving approximately 15% for consumption within the province. In the same year the gross value of production in the mining industry amounted to $74,475,902, with an apparent provincial consumption of 17% after deducting an estimated exportation of $62,034,967. The apparent provincial consumption in the case of fisheries amounted to 10%, taking the two years 1936 and 1937 together, with the gross value of production in the two years stated to be $33,386,973 and total exportation in the same period estimated to be $30,837,403.[1]

The gross value of production in agriculture is frequently compared with that of mining, forestry, and fishing. Compared in that way, agriculture in British Columbia is usually accorded third position. During the period 1921–1937 the gross value of forestry products amounted to $1,172,521,000; in the same period mining products amounted to $847,627,533; and agricultural production to $796,904,584. Fishery products amounted to $317,936,467. The significance of this comparison, however, largely rests in the fact that mining, and to some extent, forestry, depends on diminishing resources, while agriculture and the fishing industry are essentially reproductive.

[1] In this last case the illustration is somewhat inadequate, largely because fish caught and canned in one calendar year may be sold in the following calendar year. Periodically a large pack occurs, and comparisons between production and sales in any one year are misleading. Trade statistics are taken from: British Columbia, Bureau of Economics and Statistics, "The Trade of British Columbia, 1937".

TABLE 12.—ESTIMATED GROSS VALUE OF PRODUCTION IN BRITISH COLUMBIA'S FOUR BASIC INDUSTRIES, AS COMPILED BY THE PROVINCIAL DEPARTMENTS, 1921–1937

Calendar year	Agriculture (a)	Forestry (b)	Mining (c)	Fisheries (d)
1921	43,527,586	64,970,000	28,0 6,641	13,953,670
1922	41,408,566	59,4 7,000	35,162,843	18,849,658
1923	44,496,600	86,674,000	41,304,320	20,795,914
1924	45,066,788	80,702,000	48,704,604	21,257,567
1925	48,951,514	81,941,000	61,492,242	22,414,618
1926	52,883,770	84,802,000	67,188,842	27,367,109
1927	53,265,915	83,087,000	60,729,358	22,890,913
1928	58,644,243	93,787,800	65,372,583	26,562,727
1929	62,632,890	93,301,000	68,245,443	23,930,692
1930	55,957,734	69,737,000	55,391,993	23,103,302
1931	40,107,635	44,447,000	34,883,181	11,108,873
1932	34,373,926	35,157,000	(e) 28,798,406	9,909,116
1933	36,647,007	39,155,000	(e) 32,602,672	12,001,471
1934	39,826,141	45,461,000	(e) 42,305,297	15,234,335
1935	42,419,992	56,941,000	(e) 48,821,239	15,169,529
1936	46,669,735	72,010,000	(e) 54,081,967	17,231,534
1937	50,024,542	80,872,000	(e) 74,475,902	16,155,439
Accumulated Total, 1921–1937	796,904,584	1,172,521,000	847,627,533	317,936,467

(a) Source: British Columbia, Dept of Agriculture, "Agricultural Statistics Report", calendar year 1936, p. 13.
(b) Source: British Columbia, Dept. of Lands, "Annual Report of the Forest Branch", calendar years 1921 to 1936 inclusive.
(c) Source: British Columbia, "Annual Report of the Minister of Mines, Part A", calendar year 1936, p. A-14.
(d) Source: Dominion Bureau of Statistics, "Fishery Statistics of Canada", calendar year 1935, p. 54. "Advance Report on the Fisheries of Canada", 1936, p. 15. Note: No statistics are compiled by the Provincial Fishery Department.
(e) In Canadian funds.

Exploitation of a resource that cannot be replaced by a similar resource of equal value, presumably can be considered a reduction of capital assets. To a large extent this has been true in the case of forestry, mining, and partly so in the case of the fisheries in British Columbia. The extent to which liquidation of these exhaustible resources has produced a permanent addition in provincial wealth is a question which may not be entirely pertinent at this point, but it is in this direction that agriculture has made perhaps its greatest contribution.

It must be allowed, of course, that the process of transforming exhaustible natural resources into exchange-values has in itself undoubtedly been profitable, bringing idle resources into production with its attendant economic activity. The greater portion of these products have been sold to consumers outside the Province, creating thereby a fund of purchasing power which could either be returned to the British Columbia producers in the form of consumer goods; capital goods; or used to pay capital, interest, or dividends abroad; or returned in the form of money to be spent or accumulated within British Columbia. But in the final analysis the portion actually remaining within the Province would tend to equal the amount paid directly or indirectly to domestic industries for goods and services.

Since the early efforts of the Hudson's Bay Company to curtail operating costs in their fur outposts, numerous attempts have been made to reduce importation into the Province and to substitute domestic industries.

Agriculture has been particularly adapted to this policy and has been consistently a leading domestic industry selling the bulk of its products in the home market. The economic production of foodstuffs has been possible where frequently other industries, particularly manufacturing, could not be successfully established—even with high transportation charges prevailing—in the face of competition from the other Canadian Provinces or from foreign countries. Accordingly, capital accumulation in British Columbia has to a large extent depended upon the development of agriculture.

It is difficult, and perhaps unnecessary, to provide a rigorous statistical proof for the statement that agriculture has probably made the most significant contribution towards the accumulation of capital of any basic industry within the Province. A crude method of substantiation is attempted here, however, merely to illustrate the question.

In the three calendar years 1935–1937 the estimated gross value of agricultural production amounted to $139,113,269. Subtracting the value of agricultural exports, both to foreign countries and to the other provinces in these three years ($25,155,379), the apparent domestic consumption can be estimated at $113,957,890. In the same period British Columbia had an estimated favourable balance of trade with all areas amounting to $81,448,111.[1]

We can assume that much, if not all, of the agricultural products produced and consumed locally would have been imported into the Province in the absence of a domestic source, and it follows that any substantial reduction in agricultural production would have had a significant effect on the trade position.

It is reasonable to expect that, until industrial development has proceeded much further in British Columbia, the Province will continue to depend largely upon its agricultural industry to conserve the wealth arising from the exploitation of its natural resources.

---

(1) British Columbia, Bureau of Economics and Statistics, "The Trade of British Columbia, 1936 and 1937".

THE RELATION BETWEEN CHANGES IN THE RURAL POPULATION AND THE TREND OF AGRICULTURAL PRODUCTION IN BRITISH COLUMBIA[1]

G. F. Drummond
University of British Columbia, Vancouver, B.C.

When we attempt to relate changes in the population or numbers of any occupational group to the trend of production of its particular products we are really assuming that, in the course of time, the supply of labour for the occupation or industry in question will be sufficiently elastic to adjust itself to increases or decreases in the volume of production. In other words, we are assuming that, excluding such changes in technique, equipment or organization as would materially affect the productivity of labour, any rise in the trend of production will be associated with some relative rise in the number of persons engaged and, conversely, any decline in the trend will bring about some unemployment or, at any rate, a loss in the number of persons employed in the industry. But in the case of agriculture we must guard ourselves against the implications of this assumption.

Before we attempt, therefore, to estimate the rural population of British Columbia or relate it to agricultural production in the Province it might be well to keep in mind the following considerations.

1. Agricultural production may increase (apart from variations in yield) without any increase of the agricultural population. This may be due to various causes:—

(a) The labour supply from within the industry may be increased by recruiting the family as a working unit.

(b) The farmer's working day is not a matter of regulation, and he may choose to increase the man-hours spent upon the work of the farm by working longer or perhaps harder; and there are times when he will choose to do this as a matter of course.

(c) The reaction of a farmer to low prices is not necessarily the usual economic response of reduced production. He may attempt to produce more at the lower prices in the hope of retrieving some of his lost income.

(d) The application of better scientific methods and improved equipment or the gradual adoption of a more economical size of farm are, of course, well known causes of increased production without additions to personnel.

(e) More important than any of these, however, are the values obtained for a given production. Production may increase while values, due to lower or falling prices, may actually decline. Purchasing power is essentially a ratio of prices—the prices of the things sold and the prices of the things bought—and the farmer's prosperity is accordingly determined by "production at a price" or, in other words, the value of his total product in the

[1] Address delivered before the Eleventh Annual Meeting of the Canadian Agricultural Economics Society at Vancouver, B.C., June 19–22, 1939, held in conjunction with the Nineteenth Annual Meeting of the Canadian Society of Technical Agriculturists.

open market. If the numbers of the agricultural or rural population are determined by the economic fortunes of the farmer, then increased production at low prices may mean a stationary or falling rural population rather than an increasing population.

We see, therefore, that increased production need not necessarily be associated with an increased rural population. What we can say, however, is that in the long run and in spite of these qualifications we should expect a rise in the secular trend of production to be reflected also in some increase in the rural population, though not necessarily at the same rate.

2. The second main consideration is that the numbers on the farms, and consequently the rural population, need not decline during the short run at any rate, with a fall in production or alternatively a fall in values.

(a) The farmer does not move readily from the land as the result of a short-run decline in his income. He may persist for years under bad conditions and refuse either to be attracted by other employments or to give up hope in his own initiative and enterprise.

(b) During periods of general economic depression the number of farmers may actually increase rather than diminish. Specious arguments associated with "back to the land" movements are not the only cause of this. Displacement in other industries may lead to land settlement as an adventure in independence or as an escape from relief.

(c) During depressed conditions of farming generally there may be a movement between different types of farming, thus increasing the agricultural population in certain specialized types of farming or in certain areas. For example, the prairie farmer may change from wheat to fruit, livestock, poultry or dairy farming in British Columbia and so increase the supply of labour in a type of agricultural production which may already be depressed. It is true that, in this case, production will increase but probably at the cost of much lower prices.

3. A third general consideration is that we must not be deceived by differential rates of natural increase as between the farm population and other occupational groups or as between rural and urban areas. It is true that economic depression will reduce the marriage rate and eventually the legitimate birth rate, but this takes time; there is a lag which becomes important with severe and prolonged depressions. This condition is likely, however, to affect society as a whole. In short, a differential birth rate in favour of an agricultural population does not mean that the supply of labour in that industry is relatively increased. There are losses to the agricultural population in the adolescent and adult stages through the outside social and economic attractions of other industries.

The balance of mobility, therefore, between farming and other industries has to be taken as a summary effect and cannot be analysed as it might well be for most other occupations on the assumption of a fairly direct correlation between the numbers engaged in the industry and the economic fortunes of the industry over time. Agriculture presents peculiarities in this respect all its own. We shall be content, accordingly, to give on the one hand, as reasonable an estimate of rural population in British Columbia as is possible under difficulties of limited and inadequate data and, on the other, an outline of the trend of production of typical B.C. agricultural products up to and including 1937. It was the intention,

at first, to cover the period for both population and production from 1921 to 1937. This has become impossible owing to the deficiencies, or one should rather say the lacunae, in the data provided by the census of 1921. In 1921 the total population of British Columbia is given as 524,582; of this number, 277,020 are given as "rural" and 247,562 as "urban" population. Unfortunately the figure for the rural population in 1921 is of no use for our purpose, as we have no comparable figures for "correcting" this number; the census districts have been since reorganized, and from 1931 on the figures are comparable with school and registration districts in administrative units of British Columbia. Moreover, in 1921 no figures are available for occupational distribution except for a few cities. We are obliged in consequence to take the census figures for 1931 and compare them with our estimate for 1937 in order to arrive at some figure of increase or decrease in the rural population since the census year.

We are concerned only with an estimate of the rural population of British Columbia for 1937. What do we mean by the "rural population"? Briefly, the rural population may be defined as those living in truly rural districts where they are dependent directly or indirectly on agriculture for a livelihood. Note that this is quite different from an "agricultural population". In the census of 1931 the total of all persons actively engaged in agriculture in British Columbia is given as 42,209 persons. Even if we add some 15,943 persons employed[1] in industries linked with or dependent on agriculture the total becomes only 58,152. In 1931, there were 306,263 persons out of a total population of 694,263 gainfully employed or 44.11 per cent. If we proceeded on the assumption that this ratio was also true of agriculture we would arrive at 131,834 persons as the total agricultural population in 1931. The census, however, gives the total rural population for the same year as 299,524. Are we to assume that the rural population is 2.27 times greater than the agricultural population even when the latter has had the addition of 36,144 persons who do not actually gain their living directly from the soil but from processing operations? There is something wrong with one or both of these figures. In the first place there is certainly an error in assuming that the ratio of gainfully employed to the total population may be arbitrarily applied to those engaged in agriculture. Many of the industries in British Columbia, such as lumbering, have a very large proportion of single to married persons; this is not true of agriculture. Moreover, the ratio in question takes account of retired persons, inmates of institutions and so on. It is fairly safe to say that the ratio cannot be applied to the farming group and that the number of 131,834 is certainly an under-estimate of the agricultural population. But how may we correct it? Fortunately, it is not necessary to do so, as we may approach the problem more directly from an estimate of the "rural population" itself.

[1] 1931

Vegetable Products, Biscuits, Candies, etc.	4,044
Bread and Other Bakery Products	1,582
Fruit and Vegetable Canning	468
Vegetable Food Products, not elsewhere stated	125
Animal Products—Butter, Cheese and Condensed Milk	4,992
Slaughtering and Meat Packing	696
Other Animal Products, n.e.s.	27
Tanning	42
Retailing—Dairy Products	915
Flour and Feed	263
Fruits and Vegetables	785
Meat, Poultry and Fish	1,986
Wholesale Dealing—Butchers and Slaughterers	18
	15,943

Our definition of a rural population which is dependent directly or indirectly on agriculture as a means of livelihood is unfortunately not the definition adopted by the Dominion Bureau of Statistics in its Census Division. Rural population is defined by them as the population in rural districts. Rural districts, however, may be truly rural or not. Urban population is comprised of all incorporated urban centres whether under 1,000 population or not. Rural population includes all unorganized territory, community districts and district municipalities. For example, entirely urban areas such as Burnaby and Oak Bay District Municipalities, and also areas which have practically no agricultural population such as the areas surrounding Ocean Falls and Powell River and the territory near Prince Rupert and the Queen Charlotte Islands are all included under "rural population". In order to obtain, therefore, a truer picture of the rural population within the ambit of our definition it was found necessary to adjust the Dominion Bureau of Statistics figures of "rural population" to an agricultural basis. This was done (1) by eliminating certain district municipalities and areas, and (2) by adding cities and villages that fall within our definition.

The following have been eliminated: Tadanac District Municipality, Burnaby, North Vancouver, West Vancouver, Richmond, Esquimalt, Oak Bay, Saanich (one-half) University Endowment Area, Area 7, Area 9C, Area 9D.

The following cities and villages have been added: Abbotsford Village, Mission Village, Duncan, Salmon Arm, Merritt, Williams Lake, Kelowna, Enderby, Armstrong, Vernon.

When we correct the Census "rural population" as indicated above we have the following result:—

	1931
Total Population of British Columbia	694,263
Total Rural Population (Census)	299,524
"Corrected" Rural Population	232,688
Ratio of "Corrected" Rural to Total Population	33.52

The net result has been to reduce the so-called rural population of the Census by some 67,000 persons and to show that about one-third of the population of British Columbia in 1931 was living in typically agricultural districts or township centres and was dependent directly or indirectly on agriculture for a livelihood. It is not claimed that all errors have been removed by the adjustment method adopted, but it is claimed that this corrected rural population gives a more reliable figure for our purposes than the so-called rural population of the Census.

The next problem is to estimate for the same districts covered by the "corrected" analysis for 1931 the rural population for 1937. We could arrive at this easily by using the ratio obtained above on the Dominion Bureau of Statistics estimate of British Columbia's total population for 1937. There are three difficulties here. First, to make a second estimate from a first estimate is not a very sound method if it can possibly be avoided. Second, the Dominion Bureau estimate for 1937 is somewhat lower than the Provincial Bureau of Economics and Statistics. Third, even if we used either of these estimates we are simply going on the assumption that

the ratio of rural population to total population is the same for 1931 and 1937. This is a very doubtful statistical procedure and if it is possible to avoid it by utilizing a better statistical method it is wise to do so. Too often estimates of occupational and industrial groups are made on the hypothesis that their relative ratios do not change from one year to another. For illustration purposes, however, let us apply the ratio of 33.52 (1) to the Dominion estimate of British Columbia's population for 1937 and (2) to the Provincial estimate for the same year.

(1) Dominion Bureau of Statistics Estimate	751,000
Derived "corrected" Rural Population	251,700
(2) Provincial Bureau of Economics and Statistics Estimate	780,000
Derived "corrected" Rural Population	261,400

It will be observed that the Provincial estimate for total population is 29,000 persons greater than the Dominion estimate, and that accordingly the rural population derived from the Provincial estimate is some 10,000 persons greater than that derived from the Dominion estimate.

As stated above there are grave objections to this procedure, and it would be much better (1) if we could avoid using either the Dominion or Provincial estimates of total population in 1937 and (2) if we could ignore the assumption that the ratio of population distribution between rural and all other areas is constant for years subsequent to the Census. This we can do by using the elementary school population as a basis. The advantage of using school population data is that we have the school reports published annually; again, variations in the school population are often a very good indication of population trends. In the case of farming, the school population for farming or rural districts gives the summary effect of immigration or emigration from agriculture as an industry; assuming that those who enter or leave farming have normally the same number of dependents as those who may be regarded as the industry's stable personnel, then variations in the rural elementary school population may be an excellent summary method of calculating changes in total rural population. Here, however, we must guard against failure to adjust the ratios for secular trend in the birth rate; for example, a falling birth rate over a number of years would reduce the rural school population more than the total rural population. Let us summarize the figures thus:—

	1931	1937
"Corrected Rural" Population	232,688	—
Total Elementary School Population	95,749	93,383
Total Rural Elementary School Population	38,232	40,926
"Corrected Rural" Elementary School Population	31,359	33,847
Ratio "Corrected Rural" to Total Elementary School Population	32.75	36.24

The problem is to fill in the blank space for "Corrected rural" population 1937. First, however, it might be well to draw attention to the fact that the ratio of corrected rural school population to total elementary school population has changed between 1931 and 1937; in 1931 it was

32.75 per cent and in 1937 it had risen to 36.24 per cent. In short, a larger proportion of elementary school children were in rural schools in 1937 than was the case in 1931. This would seem to indicate that the agricultural population or rather the rural population had increased relative to other districts or to other occupational groups. It has not been found possible to follow this changing ratio from year to year, i.e., from 1931 to 1937, for the corrected rural population as this would entail a meticulous search of school reports for all these years and inclusions and exclusions based on the adjusted districts shown above for the Census year 1931. This, nevertheless, shows how easily an error may be hidden in a changing ratio if we assume no change whatever in the ratio for years subsequent to the Census. For example, if we were to base an estimate of Rural Population on the ratio of total elementary school population to rural population, our estimate for the rural population of 1937 would accordingly be 226,933. This undoubtedly would be an underestimate since the (corrected) rural elementary school population was growing relative to the total elementary school population. We are, therefore, on surer ground when we use the ratio of the corrected rural elementary school population to the corrected rural population. This result may be stated as follows:—

	1931	1937
(a) "Corrected Rural" Population	232,688	251,149
(b) "Corrected Rural" Elementary School Population	31,359	33,847
Ratio of *(b)* to *(a)*	32.75	36.24

The conclusion, therefore, is that the rural population of British Columbia, as defined above, was around 251,000 persons in 1937. Curiously enough this estimate agrees fairly well with the estimate based on the Dominion Bureau of Statistics estimate of British Columbia's total population in 1937 as 751,000 whence we derived an estimate of corrected rural population for 1937 of 251,700. This similarity is probably a statistical coincidence and is in no way significant; it does not, in fact, indicate in turn that the Dominion Bureau of Statistics estimate of population in 1937 is any more correct than the Provincial estimate which, it will be remembered, is larger by 29,000 persons.

To sum up, we may say that the rural population of British Columbia has increased by around 7.87% between 1931 and 1937, that is, from 232,688 persons to around 251,000 persons.

If we could say that production or values of production had advanced at the same rate we would have a perfect correlation between population and production, but this is not so. Agricultural production in British Columbia is very diversified, and to be perfectly consistent we should go further in our rural population estimate and break it down to include the rural population attached to fruit farming, dairy farming, poultry farming and so on. This is quite impossible. The best we can do is to show how each specialized phase of the British Columbia agricultural industry has fared during the period 1921 to 1937. The differential trends in the production of different agricultural products during that period

might in turn illustrate a general redistribution of the farming population in British Columbia during these years, but this cannot be proved statistically. Only competent observers thoroughly familiar with all the shifts in the fortunes of British Columbia agriculture in all its phases can give to the figures the human realities they deserve.

There follow eighteen illustrative charts showing the trends of production or values of British Columbia's agricultural products over the period 1921–37. In the charts, lines of trend have been fitted showing percentage annual rates of increase (+) or decrease (−) as the case may be.

The following descriptions show what data are covered in the charts 1 to 19 inclusive.

"Total Livestock Sold" includes:—
- Horses
- Beef Cattle
- Dairy Cattle
- Sheep
- Swine
- Goats

"Total Poultry Products" includes:—
- Poultry
- Eggs

"Total Vegetables" includes:—
- Potatoes
- Turnips, etc.
- Vegetables

"Total Dairy Products" includes:—
- Butter (creamery) and (dairy)
- Cheese
- Milk (as fresh)
- Milk (evaporated)
- Ice-cream
- Miscellaneous

"Total Fruit Crops" includes:—
- Apples
- Other Tree-fruits
- Small Fruits

"Grains and Fodders" includes:—
- Grains
- Hay and Clover
- Other Fodders

The grand total values of agricultural production is made up of these six groups plus the total of the miscellaneous group which is composed of the following:—

- Honey and Beeswax
- Wool
- Hops
- Tobacco
- Goat's Milk
- Rabbits
- Seeds
- Nursery Stock
- Fur-bearing Animals and Pelts

The first chart gives the "grand total agricultural production in values and excluding live stock". Livestock values were omitted from this chart, as the figures for live stock before 1927 were computed on the basis of the *gross value of all live stock on farms*, while after 1927 the figures show the *total values of live stock sold* during the year.

It will be seen from Chart 1 that the value of agricultural production has had two wide swings within the period. The total value rose steadily from almost $41 million in 1922 to over $54 million in 1929 when the depression collapse brought it down to around $32 million in 1932. Since then the recovery has been rapid and steady reaching almost $46 million in 1937. It is interesting to observe that the value of production in 1937 was practically the same as that in 1921. This reflects first the fall in prices in 1921–22 and the calamitous effects of the depression years. Over the whole period, however, there was an average decline of 1.12%.

As explained previously, comparable figures for the period before 1927 for values of live stock sold are not available. Comparison of the charts 2 and 3, however, reveal an interesting index of farming fortunes. There was a very great fall in values from 1927 to 1931 and only a slow recovery

until 1936, yet the number of cattle on the farms did not show as great fluctuations. Values for the period, Chart 2 (1927–36), fell on the average 7.89%, while over the longer period of Chart 3 (1921–37) the number of cattle increased on the average 0.9%. The farmer was producing more cattle for less relative income.

Charts 4, 5 and 6 represent the fortunes of the dairy industry: (1) Total Dairy Production Values, (2) Quantity of Milk Sold as Fresh, (3) Quantity of Milk Sold (Evaporated).[1] In all of these there has been a steady rate of increase: (1) 2.08%, (2) 3.76%, and (3) 12.45%. Of all farming products in the Province the production of evaporated milk has had the greatest rate of increase.

A comparison of Charts 7 and 8 brings out the same fact which was noted before regarding live stock; here the contrast between value and quantity is even more marked. Production of grains has remained fairly steady and declined little if any during the depression. It increased at an annual rate of over 4%. Values on the other hand fell steadily, reaching a low ebb in 1932 and falling on the average for the period almost 3% Here again the farmer was producing more for less.

Charts 9 to 12 inclusive portray the experiences of the fruit farmers during the period under review. Fruit production has had fluctuations from year to year; its value over the period has not shown a steady rate of increase, only 0.74%. On the other hand, apple production has gone up on the average 3.79%, small fruits 2.8%, and other tree fruits[2] 5.29%. The best years undoubtedly were between 1925 and 1930; there has been a steady recovery since 1931 and though 1936 showed a slight dip, 1937 was the best year since 1930.

Charts 13 and 14 show that vegetable production has been relatively stable during the whole period; this does not mean that it did not suffer annual fluctuations, but on the average there was little or no increase. Production increased while values diminished although the amounts are negligible. It is remarkable, however, that production actually rose during the depression although values then suffered a marked decline. Hop production (Chart 15) advanced at a fairly steady rate during the period, showing an average advance of 4.54%.

From Charts 16 and 17 it may be seen few agricultural products show such wide swings in value over the period as do total poultry products. From $3,621,000 in 1921 they rose to $7,970,000 in 1929 falling rapidly to $2,246,000 in 1933; since then the rise has been slow reaching $4,359,000 in 1937. The quantity of egg production, however, has advanced steadily at an average annual increase of 7.14%.

The production of honey in British Columbia (Chart 18) seems to be a growing industry. In 1921 only 309,000 lb. were produced; this amount

[1] "Quantity of Milk Sold (Evaporated)." The figure for 1921 is only 7,200 cases as against 1,692,000 cases for 1922. In 1920 only 10,323 cases were processed. The beginning of an infant industry!

[2] "Other Tree Fruits—Quantity." The figure for 1925 of 4,876,000 lb. as against over 12 million lb. in 1924 and over 25 million lb. in 1926 appears out of line for the period. This is probably an error in the statistics for the year. It may indicate, however, an exceptionally bad crop through frost, drought, etc., in the Okanagan; there was also a decline in apples and small fruits for that year.

rose steadily, showing practically no effect from the depression until it reached 1,427,000 lb. in 1937. The annual rate of increase has been 7.48%.

Charts 20 and 21 bring together, respectively, the average annual rates of increase or decrease for (1) values and (2) quantity. No statistical time series is really complete without corresponding data on value and quantity for the product under economic analysis. Data on the production of physical quantities tell us nothing about the farmer's success in increasing production; without data on the values of the production we cannot tell whether the farmer's purchasing power, that is, the exchange of his products at a price for the products he has to buy, is rising or falling. In like manner data on values of production without indicating the quantities which these values represent may give a quite misleading picture of the farmer's economic position. We need both values and quantities if our analysis is to be complete or worth while.

In these two charts there have been brought together comparisons of rates of increase for different agricultural commodities for both values and quantities wherever possible.

One thing is evident at the outset. On the chart showing changes in quantity all quantities are positive from the low of 0.022% for vegetables to a high of 12.045% for evaporated milk. Physical production was increasing in all commodities considered, though at differential rates. When we look, however, at Chart 20 on which relative rates of growth or decline for values of commodities produced are shown, we note that in only two cases, namely, dairy products and total fruit crops, are there positive increases. Values in all other cases show declines over the period. Chart 21 shows that all quantities increased; Chart 20, that all values decreased except two.

CONCLUSION

The conclusion is that in practically all cases, the farmer was producing more for less. His barter terms of exchange had been lowered on the average during the whole period; it is true that the weight of the depression is reflected in all these relative rates of growth or decline, but in spite of this and in spite of a subsequent degree of recovery it seems clear that the farmer has not improved his position. Dairy farming and fruit farming have come off best, while live stock farming has suffered the greatest relative loss.

In trying to relate these trends to population changes it would be necessary to relate the distribution of the rural population to the various phases of the farming industry. We should expect that those types of specialized farming such as fruit farming and dairy farming, which have been relatively better off than the others, enjoyed the least outward mobility and perhaps received additions to their populations from the outside. We said that since 1931 the rural population had increased some 7.87%; it is difficult to relate this figure to the trend of agricultural production as shown by these rates of increase or decrease except to say that, in spite of their average effects, it must be kept in mind that 1931, the census year, was a depression year, a year of intensified decline in

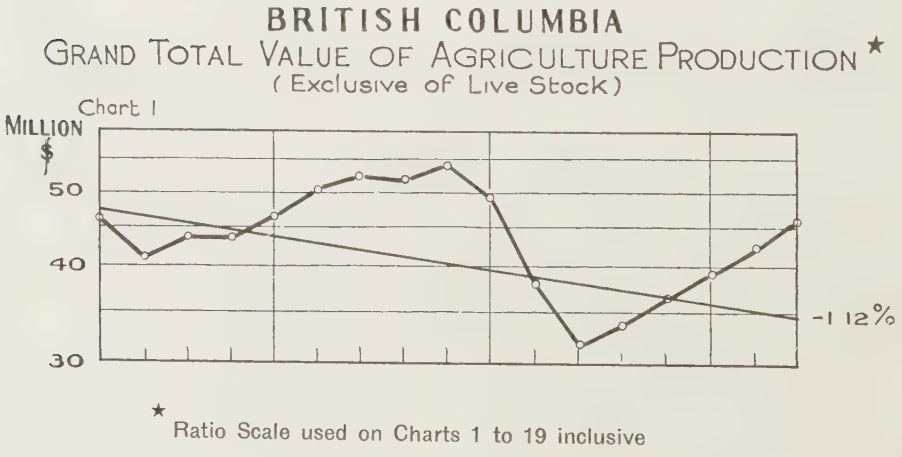
agricultural values and that since 1932 and 1933 there has been a rate of recovery for all these products much greater than these average trend rates. Yet the conclusion remains that the rural population has increased in spite of agricultural depression, in spite of increased production and falling values. If the cost of living had been falling to farmers at a fast rate there would have been some abatement of their economic situation in this respect. Chart 19 shows that the cost of living did fall on the average 2.98% annually over the whole period. Between 1930 and 1933 it fell from 99.2 to 77.5; in 1937 it had risen to 83.1. It is difficult to know how a change in the cost of living index for the whole of British Columbia affected the farming population directly. That some gain was derived from a fall in the index is undoubtedly true, and it may have been more for the farmer than it was for the non-agricultural population, but the degree of gain may not be very significant.

If the Dominion Bureau of Statistics estimate of population in the Province is reasonably correct for 1937 all we can say is that the rural population continued to increase at a rate fairly normal for the Province during the years 1931 to 1937, and this in spite of increased production at lower relative prices. This may be the most satisfactory conclusion.

ACKNOWLEDGMENT

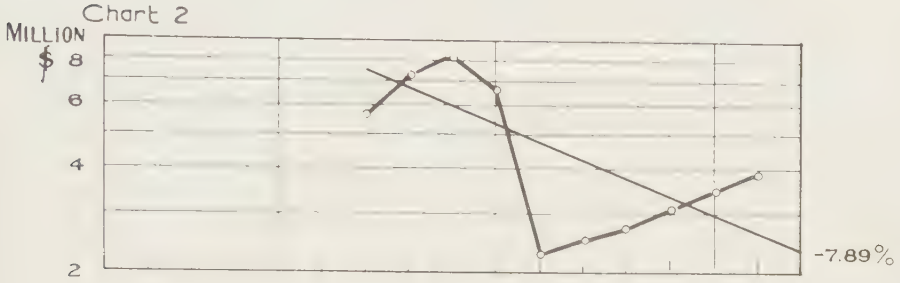
Thanks are due to the Vital Statistics Division of the Bureau of Economics and Statistics, Victoria, B.C., for help in collecting the data, and particularly to Miss Helen Parker, B.Com., for technical assistance on the charts and tables.

APPENDIX



VALUE OF LIVE STOCK PRODUCTION

Chart 2

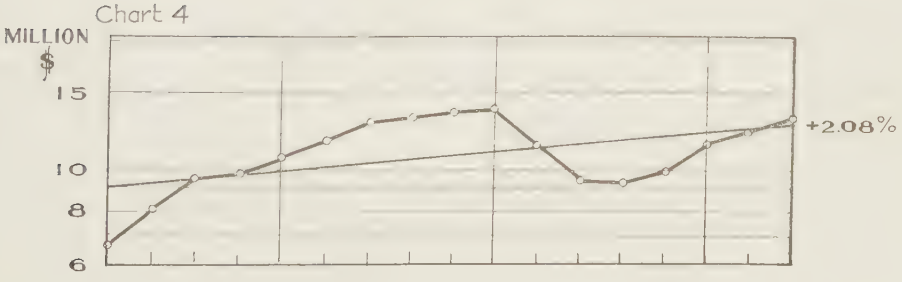


NUMBERS OF CATTLE ON FARMS AT JUNE 1st

Chart 3

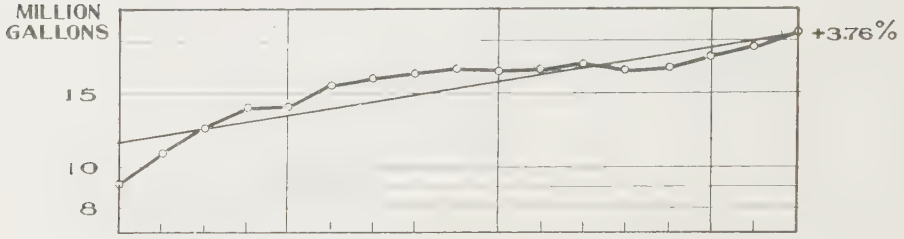
TOTAL DAIRY PRODUCTION

Chart 4



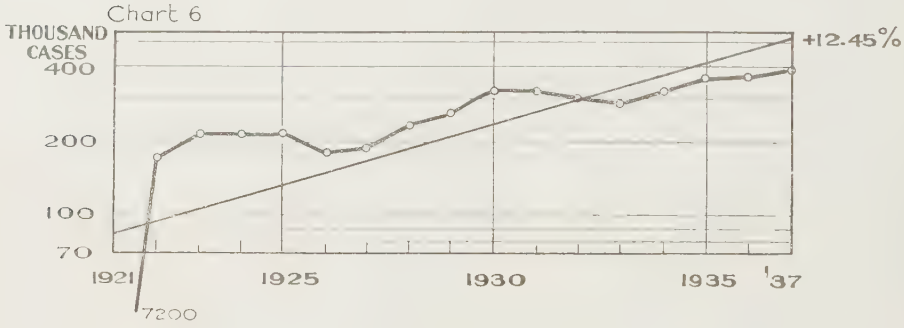
QUANTITY OF MILK SOLD AS FRESH

Chart 5



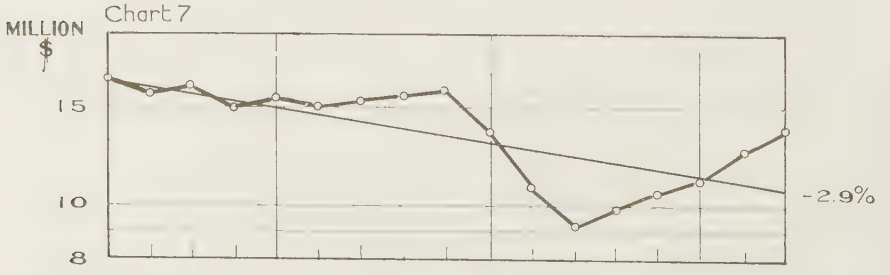
QUANTITY OF MILK SOLD – (EVAPORATED)

Chart 6



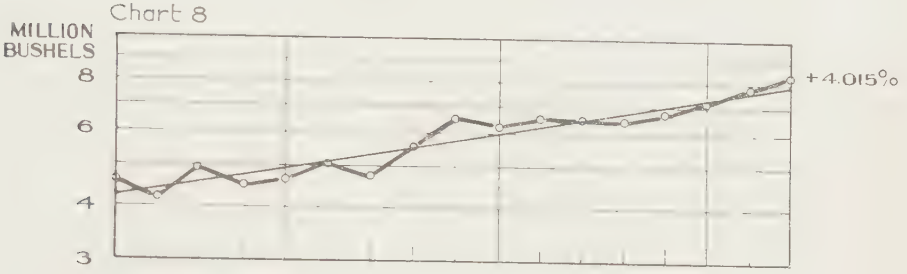
VALUE OF TOTAL GRAINS AND FODDERS

Chart 7



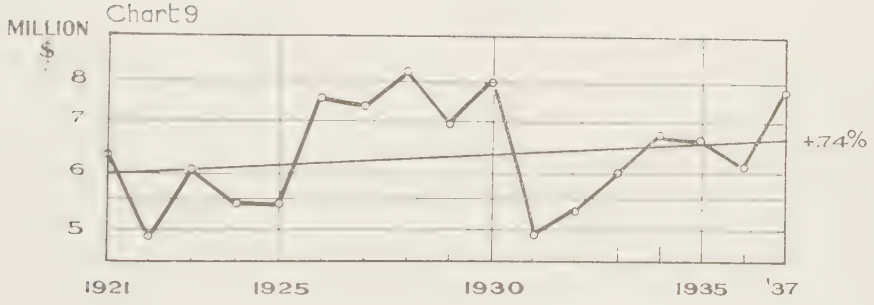
TOTAL QUANTITY OF GRAINS PRODUCED

Chart 8



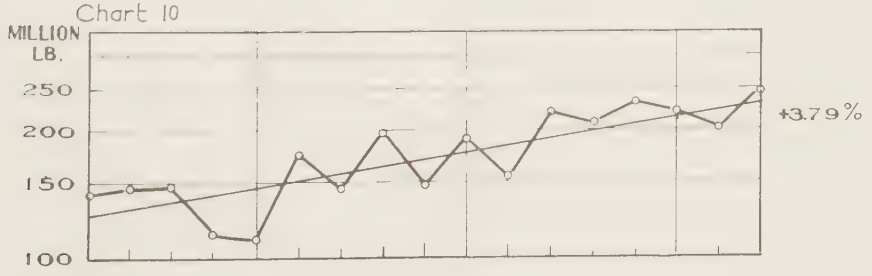
VALUE OF TOTAL FRUIT CROPS

Chart 9



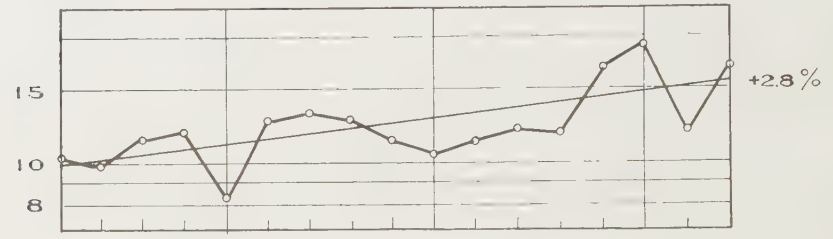
TOTAL APPLE PRODUCTION – QUANTITY

Chart 10



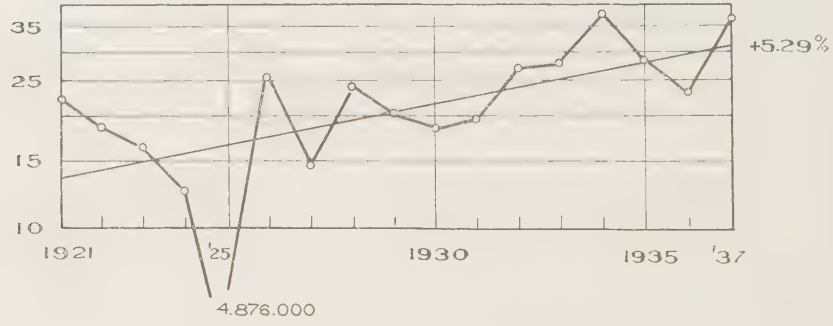
TOTAL SMALL FRUIT PRODUCTION - QUANTITY

Chart 11



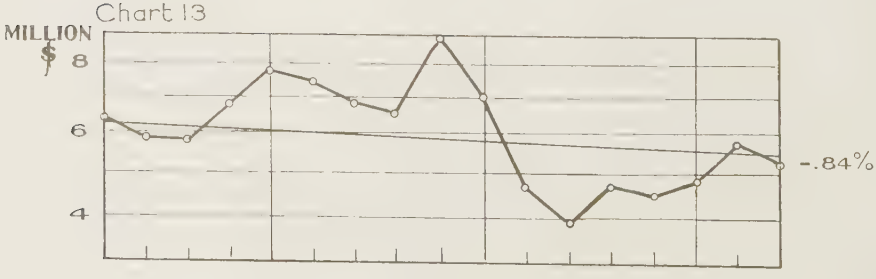
TOTAL PRODUCTION OTHER TREE FRUITS - QUANTITY

Chart 12



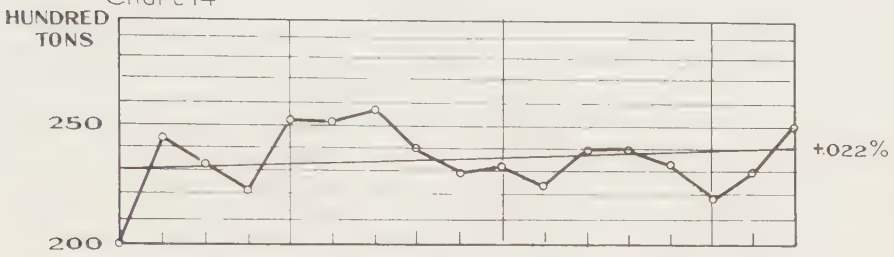
VALUE OF TOTAL VEGETABLE PRODUCTION

Chart 13



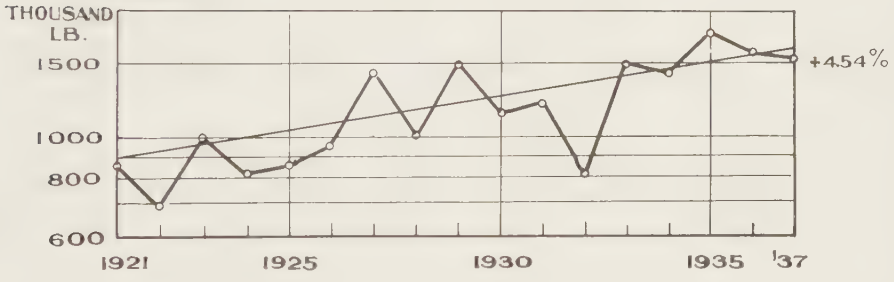
TOTAL VEGETABLE PRODUCTION-QUANTITY

Chart 14



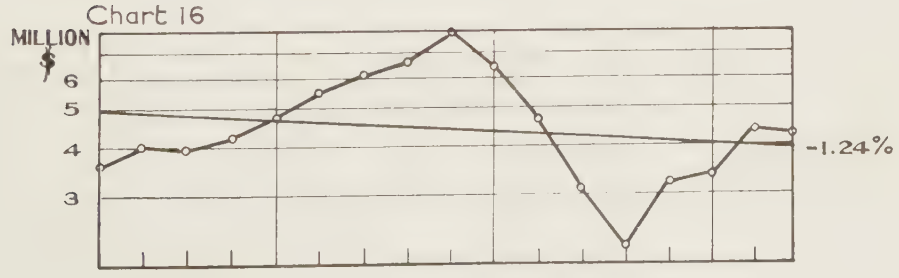
TOTAL HOP PRODUCTION - QUANTITY

Chart 15



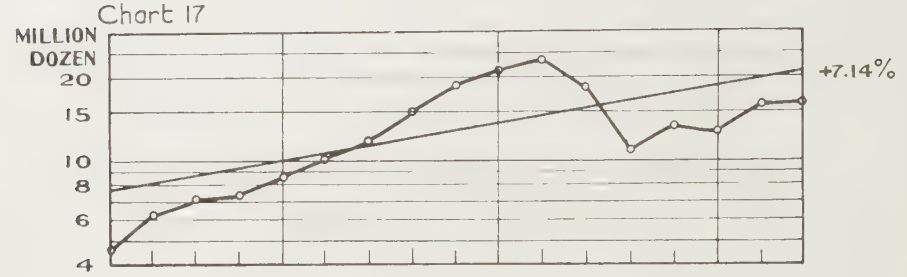
VALUE OF TOTAL POULTRY PRODUCTION

Chart 16



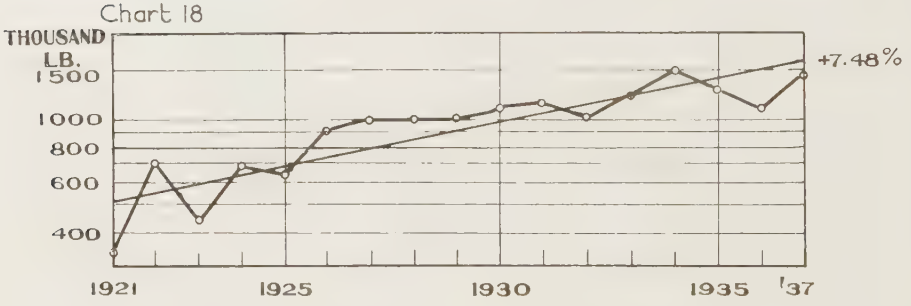
TOTAL EGG PRODUCTION - QUANTITY

Chart 17



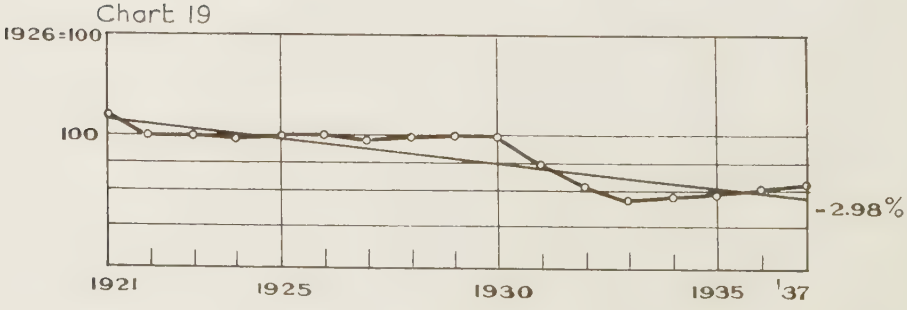
TOTAL HONEY PRODUCTION - QUANTITY

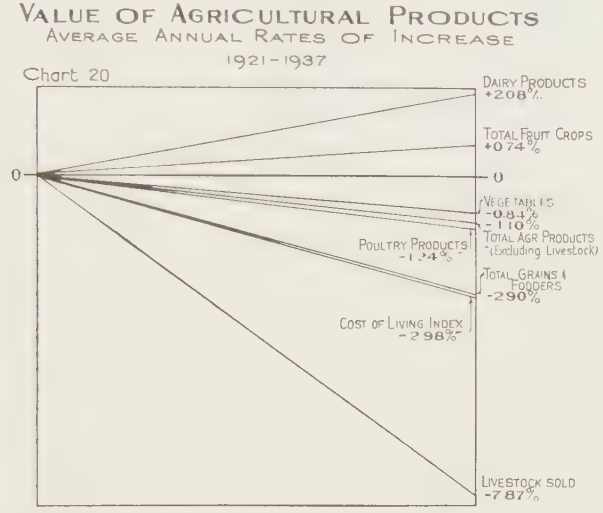
Chart 18

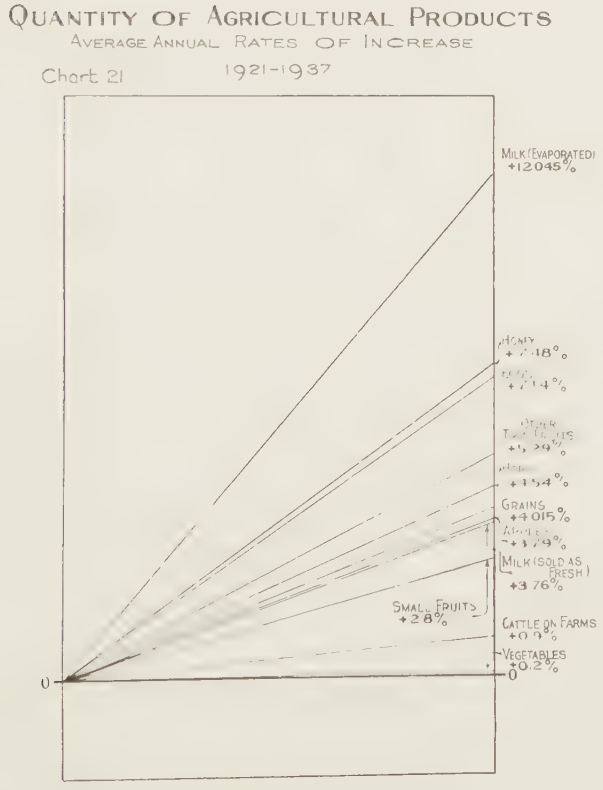


COST OF LIVING INDEX

Chart 19




VALUE OF AGRICULTURAL PRODUCTS
AVERAGE ANNUAL RATES OF INCREASE
1921-1937
Chart 20
0
DAIRY PRODUCTS +208%
TOTAL FRUIT CROPS +074%
0
VEGETABLES -084%
-110%
TOTAL AGR PRODUCTS (Excluding Livestock)
POULTRY PRODUCTS -124%
TOTAL GRAINS & FODDERS -290%
COST OF LIVING INDEX -298%
LIVESTOCK SOLD -787%


QUANTITY OF AGRICULTURAL PRODUCTS
AVERAGE ANNUAL RATES OF INCREASE
Chart 21
1921-1937
MILK (EVAPORATED) +12045%
+4015%
SMALL FRUITS +28%
CATTLE ON FARMS +0.9%
VEGETABLES +0.2%
0
0

THE ANNUAL BUSINESS MEETING OF THE CANADIAN AGRICULTURAL ECONOMICS SOCIETY

Held at Vancouver, British Columbia,
June 20, 1939.

Dr. J. F. Booth, President of the Society was in the chair.

The minutes of the business meeting held at Ottawa, Ontario, on June 29, 1938 were read by the Secretary and were adopted on the motion of Dean F. M. Clement, seconded by Major H. G. L. Strange.

The following report of the Secretary-Treasurer was read:

A. Financial Report.

THE CANADIAN AGRICULTURAL ECONOMICS SOCIETY

Receipts and Disbursements for the Period June 15, 1938 to June 7, 1939

Cash in Bank, June 15, 1938....		$136.97	Annual Dinner.....	$ 68.75	
Fees, 1938–39.....$	77.00		Annual Dinner Gratuities.....	7.60	
Fees in advance, 1939-40.....	2.00		Stationery and stamps	12.24	
Sale of Proceedings...	3.00		Exchange.....	0.66	
Memberships, C.P.S.A.	10.00		Publishing.....	5.65	
Sale of tickets to Dinner.....	67.50		Binding.....	8.37	
Donation, A.A.A.S. Ottawa Committee	7.00		Editing.....	5.00	
Interest.....	.69		Memberships, C.P.S.A.....	10.00	
		167.19	Social Science Council	10.00	
			Drafting.....	3.00	
					$131.27
			Cash in bank, June 7, 1939....		172.89
		$304.16			$304.16

Certified Correct

W. S. Chown,
W. C. Hopper,
Auditors.

June 9, 1939.

B. Membership

The Canadian Agricultural Economics Society had 79 members during the year ending June 15, 1939. The membership records for the years 1935–36 to 1938–39 are as follows: 1938–39, 79; 1937–38, 81; 1936–37, 65; 1935–36, 41.

C. Activities

The report of the Proceedings of the Tenth Annual Meeting was issued on October 28, 1938. The Proceedings of this meeting, the largest published to date consisted of 199 mimeographed pages. There were 19 papers included and 43 pages devoted to discussion of these papers. Two circular letters were sent to members and prospective members of the Society.

The report of the Secretary-Treasurer was adopted on a motion by Mr. W. D. Porter, seconded by Mr. Bruce Marshall.

The report, prepared by Dr. J. E. Lattimer, chairman of the Canadian Committee for the Fifth International Conference of Agricultural Economists was presented as follows:

REPORT OF THE CANADIAN COMMITTEE FOR THE FIFTH INTERNATIONAL CONFERENCE OF AGRICULTURAL ECONOMISTS

HELD AT MACDONALD COLLEGE, QUEBEC, AUGUST, 1938

The Fifth International Conference of Agricultural Economists held at Macdonald College, August 21–28, 1938, succeeded in bringing together a much larger number than had previously been in attendance at meetings of this association. Naturally the preponderance of numbers was from the United States and Canada, although delegates from Great Britain and Germany were present in fair numbers and other European countries were well represented. In all, a score of countries sent delegates. Mexico and Cuba joined the group for the first time and the American Attache at Buenos Aires, Argentina, took part in the programme.

Following the custom of the past two conferences it was considered necessary to provide for translation of the proceedings as the papers were given. Previous conferences had provided translations in German as well as English. Since the conference was held in the Province of Quebec, it was considered necessary to add the French language to the others and as a result the sessions were trilingual. This required the services of two translators and involved as well some additional expense in the provision of sound equipment.

Tours of the country were provided before, during and after the conference. Neither the pre-conference nor the post-conference tours proved as popular as expected. They were, however, all proceeded with and those who travelled on the tours were very appreciative of the courtesies extended.

Considerable financial assistance was made available for those taking the tours. Some financial contributions were made specifically for that purpose. The trilingual translation and the bonusing of the tours made up the major portion of the expense of the conference. The finance committee under the chairmanship of Dr. J. F. Booth, succeeded in securing generous contributions from various sources. This fund provided for all expenditures to date and leaves a balance still on hand.

Even a brief report of the conference would be incomplete without mentioning some of the unofficial developments that occurred and which are not mentioned in the report of the proceedings now available. There was an attendance of over five hundred at the conference. In addition to the regular programme which lasted a full week, concluding with a banquet tendered by the Provincial Government, there were some informal discussions among delegates which are not referred to in the regular programme or in the published proceedings. Informal discussions of such subjects as co-operation and dairying were organized and the extension workers in agricultural economics of the United States held their annual get-together at this conference. In addition to this some Canadian problems were discussed by some workers in the field of agricultural economics who met one another for the first time on the occasion of the conference.

One of the interesting features of the conference was the number of those in attendance who extended their visit for the duration of the meeting. This indicates either that the entertainment provided during the visit was particularly attractive or that the programme, now available in a 450-page volume by the Oxford University Press, was of a very high standard.

On behalf of Dr. Lattimer, Mr. Rutherford moved adoption of the report. The motion was seconded by Mr. H. R. Hare and carried.

It was moved by Major H. G. L. Strange and seconded by Dean F. M. Clement that a note of thanks be extended to the Canadian Committee for their part in making the International Conference a success. This was carried.

Dr. Booth outlined the organization work in connection with a Canadian Social Science Council. A report on research work in the Social Sciences in Canada had been prepared and presented to a meeting held in Montreal on May 25, 1939. As a result of this preliminary survey it had been decided to examine the status of social science research and educational facilities in Canada and to decide on the future course in the light of the results of such a survey.

Dr. Booth further reported that the Canadian Agricultural Economics Society had been approached by a new organization "Social Science" with headquarters in Italy, seeking memberships of organizations. Since "Social Science" seemed to be primarily concerned with such matters as superannuation, insurance and sickness benefits, it was felt that this Society did not have an interest at the present time. It was moved by Major H. G. L. Strange and seconded by Mr. H. R. Hare that action on this matter be deferred pending receipt of further information.

The report of the Committee on the Constitution appointed at the 1938 meeting was read by Mr. J. B. Rutherford in the absence of the Committee chairman, Mr. T. G. Major. The Committee suggested that the revised "Constitution" be submitted to the members during the next year and that it be adopted at the 1940 meeting.

It was moved by Mr. Rutherford and seconded by Major Strange that this report be adopted. Carried.

The results of the election of officers for the Society year June 15, 1939 to June 15, 1940 were announced as follows by the Election Teller.

President—E. C. Hope, University of Saskatchewan, Saskatoon. Elected by Acclamation.

Vice-President—W. C. Hopper, Dominion Department of Agriculture, Ottawa.

Committee—

F. M. Clement, University of British Columbia, Vancouver.

A. E. Richards, Dominion Department of Agriculture, Ottawa.

Andrew Stewart, University of Alberta, Edmonton.

W. F. Walsh, Nova Scotia Department of Agriculture, Halifax.

It was moved by Mr. Rutherford and seconded by Mr. Porter that this report be adopted. Carried.

Mr. J. B. Rutherford continues as Secretary-Treasurer.

It was moved by Mr. Hare and seconded by Major Strange that the meeting adjourn. Carried.

The officers for 1938–39 were as follows: *President*—J. F. Booth, Dominion Department of Agriculture, Ottawa; *Vice-President*—E. C. Hope, University of Saskatchewan, Saskatoon; *Secretary-Treasurer*—J. B. Rutherford, Dominion Bureau of Statistics, Ottawa; Committee—C. B. Davidson, Winnipeg Electric Building, Winnipeg; C. A. Dawson, McGill University, Montreal; A. E. Richards, Dominion Department of Agriculture, Ottawa, and F. W. Walsh, Nova Scotia Department of Agriculture, Halifax.

Past Presidents are as follows: J. E. Lattimer, 1929–30, 1930–31; W. Allen, 1931–32, 1932–33; W. V. Longley, 1933–34, 1934–35; H. C. Bois, 1935–36; T. W. Grindley, 1936–37; J. Coke, 1937–38; and J. F. Booth, 1938–39.

BOOK REVIEWS

PEARSE, H. L. Plant hormones and their practical importance in horticulture. Technical Communication 12 of the Imperial Bureau of Horticulture and Plantation Crops, East Malling, Kent, England, 1939, pp. 88, bibl. 248, 3/6.

Investigation of plant hormones and of their nature and properties still proceeds. Many of them have been isolated and chemically determined. Many now can be made synthetically, and thus made they are no less effective in stimulating growth. The history of this work has been told by Boysen-Jensen, Went and Thimann, Schlenker and others.

But whereas the academic botanist is primarily interested in how the plant grows, the practising horticulturist wants to know how he can increase or influence the growth made, and it is to him that the present memorandum should appeal most strongly.

Admittedly in the last few years articles on the propagation of particular plants from cuttings with the help of growth stimulants have been legion, but the man who spends most of his time tending plants has little opportunity to search the libraries of London, and he will, therefore, be grateful to Dr. Pearse for the tables in which nearly 1,000 instances are recorded of attempts made by different persons with varying success to root cuttings of plants of different plant species and variety with the help of named synthetic plant hormones. So far as is possible, the period and date of treatment, strength of solution, rooting medium, type of cutting, number of cuttings treated and number rooted are stated in each case.

In addition, he will find a clear account of the actual factors which affect root formation in cuttings, a review of published work on the practical use of synthetic plant hormones and notes on the practical methods found most useful by the author.

Unable to tear himself away from the fascinating subject, he will proceed with Dr. Pearse to a consideration of the mechanism involved in induced root formation and note how increased efficiency of treatment may sometimes by realized by the use of such substances as vitamin B^1, carbohydrates, potassium permanganate, amino-acids, theelin and others.

He will learn of the surprising effects on plant growth brought to light by the curious scientist. Thus, hormone treatment definitely affects the germination of old or damaged seed, the growth of plants following treatment of seed, of the plants themselves or of their culture medium; it also influences parthenocarpic development, fruit bud growth, fruit storage, framework control and rate of rooting in transplanted trees. Each one of these offers an interesting field of research.

And if he is still greedy for more, the comprehensive list of references shows him the way.

DE VRIES, LOUIS. German-English Science Dictionary for Students in the Agricultural, Biological and Physical Sciences. McGraw-Hill Book Company Inc., New York and London. 1939. Pp. X + 473. $3.00.

The author is Professor of Modern Languages in the Iowa State College and his dictionary was prepared at the suggestion and with the collaboration of over thirty colleagues in the various branches of physical and biological science. It is a clearly printed, conveniently sized collection of some 48,000 carefully selected entries, including some phrases. It is practically free of misprints.

Realizing the necessity of access both to more general and to more highly specialized dictionaries, the author recommends five of the former, eighteen of the latter in German-English and twenty-six single-language collections of scientific terms. The specialized works refer to agriculture, bacteriology, botany, chemistry, entomology, forestry, geology, mathematics, medicine, physics, "technology", zoology, etc., signalizing the broad outlook of the lexicographer.

A list of some sixteen German Science Readers is also given, which might have been supplemented by some of the recent readers in chemistry such as those of King and Fromherz and of Yoe and Burger which give German text and English translation on parallel pages, and the series under preparation by Fotos and collaborators at Purdue University, in which a glossary and notes are appended to each passage of German text.

The book should prove especially useful to students of the many-sided science of agriculture.

J. F. SNELL.